ISLAM AND POLITICAL ECONOMY

A Study of the Influence of Religiosity and Religiously Motivated Attitudes on Macroeconomic Performance in Countries with Substantial Muslim Presence

Shawky Arif

Thesis submitted for the degree of Doctor of Philosophy

2013

Abstract

This thesis consists of three empirical chapters studying the relationship between religion and political economy for a sample of countries with substantial Muslim presence.

Chapter one is a study of the relationship between religiously motivated attitudes and FDI for a panel of predominantly Muslim countries over a period of ten years stretching from 1997 to 2006. Instrumenting for the attitude variables, I find that countries with more progressive attitudes towards women and higher levels of openness towards foreigners tend to be more attractive to FDI.

Chapter two examines the relationship between Islam and economic growth for a panel of countries with substantial Muslim presence over the period 1990-2008. Using instrumental variables, I show that higher levels of religiosity, measured by belief and attendance, depress economic growth.

Following up on the findings of chapters two and three, in chapter three I investigate how different patterns of religious behaviour map onto economically relevant attitudes for a sample of individuals from predominantly Muslim countries. The empirical findings suggest that religiosity in predominantly Muslim countries is associated with conservative attitudes towards women, and intolerance towards strangers. On the other hand, religiosity is found to be associated with confidence in state institutions, the respect of law, and pro-market attitudes. Testing for the influence of September 11 on religiosity, I find that Muslims after 2001 are more religious.

In this thesis I find that religion negatively influences FDI by encouraging conservative attitudes towards women and intolerance towards foreigners. These attitudes are also plausible channels through which the negative influence of religion on economic growth works. I also find that the pro-market attitudes produced by religion are another plausible channel through which the negative influence of religion works. Finally, the increase in religiosity after the September 11 attacks, ceteris paribus, could plausibly mean that the negative influence of religiosity in countries with substantial Muslim presence on economic performance would increase.

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List of Acronyms

EEA European Economic Area

FDI Foreign Direct Investment

GDP Gross Domestic Product

GNP Gross National Product

ISSP International Social Survey Programme

MANCOVA Multivariate Analysis of Covariance

OECD Organisation for Economic Co-operation and Development

TFP Total Factor Productivity

UNCTAD United Nations Conference on Trade and Development

WVS World Values Survey

Acknowledgements

I owe thanks and sincere gratitude to many people who have contributed to this work and supported me throughout my Ph.D. journey.

I would like to express my great appreciation to my advisors Shaun Hargreaves Heap and Peter Moffatt. I am indebted to Shaun for the valuable discussions and the guidance I received. Shaun has throughout been patient, understanding, but also critical. I also benefited immensely from the comments and advice of Peter, whom I have known for a number of years as my econometrics teacher. I would like to thank Bibhas Saha and Eelke de Jong for their comments and feedback.

Among my friends and colleagues at the University of East Anglia, thanks are due to Heather Elaydi for her help in editing and the interesting conversations that we had. I also thank Azza Dirar, Ioannis Toutountzis, Michalis Revmatas, Freddie Meade, Saeed Alkatheeri, Mani Sasanipour, and Ibrahim Alnahedh for their companionship and laughter. For motivational and emotional support I would like to thank Kali.

Members of staff at the School of Economics have been very helpful and were there to assist me when needed. I am particularly grateful for the assistance given by Gina Neff and Tracey Oak. I also thank the library staff for the exemplary service they provide. Thanks are also due to the lovely staff at Café Direct for their good service.

I also feel a tremendous sense of gratitude towards my family who was very enthusiastic and unconditionally supportive of me. I am extremely thankful to my wonderful parents, Faiza and Nacer, for believing in my success and giving me the opportunities to attain it, and for providing me with great affection and support. I am also grateful to my lovely grandmother, Aisha, and my siblings, Nadia and Rafik. Without the help and support of my family, I would not be where I am today. Thank you very much!

Finally, I gratefully acknowledge the financial support from the University of East Anglia.

أهدي عملي هذا
إلى أمّي وأبي
إعترافا بالجميل وإ كبارا لتضحياتهما

This dissertation is dedicated
to my parents
in grateful acknowledgement of their self-sacrifice

Introduction

Growing evidence suggests that religion affects economic outcomes by influencing individual attitudes and behaviour. Empirical studies have shown that religion, measured by religious beliefs and attendance, has an influence on a variety of domains of economic activity such as international trade, foreign direct investment (FDI), and economic growth.

For example, studying the influence of religion on economic growth for a sample of predominantly Christian countries, Barro and McCleary (2003) and McCleary and Barro (2006) find that religiosity, measured by beliefs and attendance, has an influence on economic growth. Trust, which is believed to be influenced by religion, is found to have an impact on institutions–the fundamental cause of economic growth (Acemoglu et al., 2005). Putnam (1993) and La Porta et al. (1997) argue that hierarchical religions such as Catholicism and Islam tend to be associated with low levels of trust. La Porta et al. (1997) find that countries with low levels of trust tend to have "less efficient judiciaries, greater corruption, lower-quality bureaucracies, higher rates of tax evasion, lower rates of participation in civic activities and professional associations, a lower level of importance of large

firms in the economy, inferior infrastructures, and higher inflation."[1] Using data for a sample of European countries, Guiso et al. (2009) show that countries with high levels of bilateral trust tend to trade more and have higher levels of bilateral foreign investment.

Like trust, individualism, uncertainty avoidance, and power distance are values that are plausibly influenced by religious beliefs. For example, Vandello and Cohen (1999) argue that the prevalence of strong religious traditions in the US South "surely" encourages collectivism. Using a measure of openness developed by Quinn (1997), de Jong et al. (2006) find that the degree of openness of an economy depends on the values that the society holds. In particular, societies with high levels of individualism tend to be associated with high levels of openness. However, uncertainty avoidance and power distance (i.e. unequal distribution of power) are negatively associated with openness.

However, the published empirical literature on the relationship between religion and economic performance has typically considered samples of predominantly Christian countries. Moreover, these studies have consistently pointed at the negative influence of Islamic beliefs on economic outcomes. Hence, the natural question that follows is whether the findings of the literature with respect to the influence of religiosity in Islam on economic performance hold for samples with larger Muslim representation.

The present dissertation is an attempt to contribute to the growing debate on

[1] La Porta et al. (1997), p. 337-38.

the relationship between religion and political economy with a focus on countries with substantial Muslim presence. This thesis consists of three empirical chapters. Chapter one is a study of the influence of religiously motivated attitudes on FDI. In chapter two I study the impact of religiosity on economic growth. Chapter three investigates the relationship between aspects of religious behaviour and attitudes believed to influence economic outcomes.

In chapter one I investigate the relationship between religiously motivated attitudes and FDI for a panel of predominantly Muslim countries. The central perspective of the chapter is that religion, by influencing individual attitudes and views, affects FDI performance. The World Values Survey (WVS) is a mega database offering data on attitudes towards a variety of issues including religion. Unfortunately, data is available only for a limited number of predominantly Muslim countries. To get around this issue, two measures of attitudes believed to be influenced by religion are constructed using data from the World Bank database: external cultural openness and internal openness. The former, derived as the ratio of the number of incoming tourists to total population, is a measure of tolerance towards foreigners. Hence, a higher ratio means a higher degree of external cultural openness. The latter variable, equal to the share of seats taken by women in parliament, is a measure of the extent to which a society embraces progressive and liberal attitudes towards women. The two variables are found to be significantly associated with religiosity. In particular, more religious commitment tends to map onto more conservatism and less tolerance towards others. Using instrumental variables for the openness variables, I find that predominantly Muslim societies with higher degrees of external and internal openness tend to be more

attractive to foreign direct investors.

Exploiting data on religious behaviour from the WVS for a panel of countries with substantial Muslim presence, chapter two studies the influence of religiosity on economic growth, measured by the growth rate of real GDP per capita. The religiosity variables, robust across religions, are measures of whether the individual is religious, belief in the importance of religion in life, belief in the importance of God in life, and attending formal religious services. These religiosity variables are strongly correlated with the attitude variables employed in the FDI chapter. In particular, more religious commitment tends to be associated with more negative attitudes towards women and foreigners. To deal with the potential endogeneity problem, I use instruments for the belief and attendance variables in order to isolate the sense of causation from religiosity to economic growth. The empirical results suggest that higher levels of religious beliefs and attendance are deleterious to economic growth. Consistent with the findings of the FDI chapter, the negative association between religiosity and economic growth suggests that higher levels of religious attendance and belief produce the type of attitudes that negatively influence economic growth. In this sense, the negative attitudes towards women and intolerance towards strangers are plausible channels through which the negative influence of religion on growth works.

The empirical evidence of the FDI and the growth chapters suggest that religious behaviour in countries with substantial Muslim presence varies across countries. Moreover, there are indications that different patterns of religious behaviour are associated with different economically meaningful attitudes.

Following up on these findings, the concluding chapter of this dissertation examines how individual religious behaviour maps onto attitudes that are believed to have an influence on economic outcomes. Making use of the WVS dataset, I select seventeen dependent variables measuring economically relevant attitudes. These variables, gathered in six groups, are measures of attitudes about the role of women in society, trusting others, confidence in state institutions, the respect of legal regulations, the market, and tolerance towards immigrants and individuals from different cultural backgrounds. The dependent variables are regressed on four measures of religiosity found to have a significant influence on economic performance in the growth chapter. These variables are the belief in the importance of God in life, the belief in the importance of religion in life, and attending religious services. I also consider a measure of whether the individual is an atheist. The regression analysis is performed on a sample of individuals from Sunni-majority countries and replicated for a sample of individuals from Shi'ite-majority countries.

In the final chapter of the thesis, I also examine the influence of the September 11 2001 terrorist attacks (henceforth September 11) on religiosity for Muslims. September 11 is a major event that had, and still have, serious repercussions for Muslims around the world. Ever since the attacks, Islam has been associated with terrorism and even fascism. In retaliation Muslims are reportedly more religious.

The findings of chapter three suggest that in both the Sunni-majority and the Shi'ite-majority countries religiosity tends to foster conservative attitudes towards women, and intolerance towards immigrants and individuals from different

cultural backgrounds. On the other hand, religiosity is found to be associated with confidence in state institutions and the respect of legal regulations. Furthermore, in contrast with the findings of Guiso et al. (2003), religiosity in Muslim-majority countries is associated with pro-market attitudes. With respect to the impact of the event of September 11 on religiosity, I find that Muslims are more religious after 2001.

The conservative attitudes towards women and the intolerant attitudes towards foreigners found to be associated with religiosity in chapter three, are consistent with the findings of the FDI and the growth chapters. In the FDI chapter I found that the negative attitudes towards women and intolerance towards strangers map onto poor FDI performance. These negative attitudes are also plausible channels through which the negative influence of religion on economic growth works. In predominantly Muslim countries, religion plays a major role in shaping individual attitudes towards women and non-Muslims. The dominant Islamic doctrine portrays the woman as a weak being, constantly in need for assistance, and, hence, her role in society has to be limited to what suits her "nature." With respect to non-Muslims, while some verses of the Qur'an and passages of the Ḥadiṯ talk positively about non-Muslims, some others address non-Muslims in a remarkably negative tone. Non-Muslims are described as "infidels," and Muslims are encouraged to dissociate themselves from them. The findings of the thesis suggest that the negative attitudes towards non-Muslims are dominating.

Another possible channel through which the deleterious effect of religion on growth works is the "excessive enthusiasm" for the market. The mainstream

economic theory advocates the superiority of the market institution in driving economic prosperity. However, the experience of the late-industrializing countries suggest that a higher degree of state intervention is desirable. Studying the late-industrialization of South Korea, Amsden (1992) argues that "when late industrialization arrives, the driving force behind it is a strong interventionist state."[1] Similarly, Chew and Lee (1991) find that the state in Singapore played a central role in the industrialization of the economy.

Given the negative influence of religion on economic performance suggested by the findings of the FDI and the growth chapters, the increase in religiosity caused by September 11, ceteris paribus, could plausibly mean that countries with substantial Muslim presence would become even less attractive to FDI, and their performance in economic growth would worsen.

[1] Amsden (1992), p. 55.

Chapter 1

Religiously Motivated Attitudes and FDI

1.1 Introduction

Previous research on the determinants of FDI has isolated a number of variables that are central to understanding why certain countries are more attractive to foreign investors than others. There is a consensus among researchers that sound economic fundamentals and good-quality institutions are crucial in attracting FDI.

The influence of cultural factors on FDI is, by and large, an area of research that remains unexplored. This chapter investigates the influence of religiously-motivated attitudes on FDI in predominantly Muslim countries.

In a fairly recent study, Dolansky and Alon (2008) examine the influence of religion on Japanese decision to invest overseas. The authors find that religious

diversity has a positive influence on Japanese investment decisions. Studying the influence of trust on FDI for a sample of European countries, Guiso et al. (2009) find that higher levels of bilateral trust tend to be associated with higher levels of bilateral FDI. Although trust per se is not a religious attitude, the findings of the literature suggest that religion has an influence on trust. Putnam (1993) argues that by discouraging horizontal bonds among individuals, hierarchical religions discourage the formation of trust. In agreement with Putnam (1993), La Porta et al. (1997) find that trust tends to be low in countries with hierarchical religions, such as Catholicism and Islam.

Although La Porta et al. (1997) describe Islam as hierarchical they do not explain how it is so. It is likely that the authors reach their conclusion by analogy. That is if Catholicism, which is overtly hierarchical (Putnam, 1993), encourages distrust, then Islam which is also negatively associated with trust must also be a hierarchical religion. Although the hierarchical nature of Catholicism is clear and manifested through the Vatican and other institutions, the hierarchy within Islam is less obvious and, hence, a clarification is in order.

According to Islamic beliefs Islam has five pillars and Muslims are required to observe them. In order to perform the rituals associated with these pillars believers do no need approvals from formal authorities. For example Muslims need no approvals to observe the month of Ramadan.[1] A reading of the Qur'an suggests that in Islam the relationship between the Muslim and the Deity is direct and there are no intermediaries. However, over the centuries Islam became

[1] Verse 2:185 of the Qur'an reads "whoever sights [the new moon of] the month, let him fast it; and whoever is ill or on a journey then an equal number of other days."

hierarchical in the sense that a class of clergies emerged (Tarabishi, 2010). The main occupation of the clergy is to provide interpretations of the scriptures that legitimize the monarch's rule and provide individuals with answers and solutions to daily problems. To this day the role of Muslim clerics is central in shaping believers' attitudes towards a variety of issues including attitudes towards the role of women in society and non-Muslims. Take for example Khomeini's fatwá[1] against Salman Rushdi. According to the fatwá Rushdi should be killed for his "heretic" Satanic Verses, and whoever carries out the sentence will be heavenly rewarded. By his fatwá, Khomeini as a cleric is "interfering" with God's will. Yet the Qur'an clearly states that reward and punishment is in the hand of God and no person can interfere with God's will.[2]

Compared to other parts of the world, the performance of predominantly Muslim countries in attracting FDI is relatively poor. For example, according to the figures of UNCTAD, the stock of FDI per capita of all Arab countries–a predominantly Muslim area, combined, stood at $1,370 in 2008. This is less than the world average, and about 90 percent less than the Euro Area level.[3] Can religiously motivated attitudes explain the poor FDI performance of predominantly Muslim countries?

The WVS is a database that covers individual attitudes in 87 countries and

[1] A fatwá (Arabic for verdict or legal judgment) is a legal ruling related to issues involving religion.

[2] For example, verse 14 of chapter 48 of the Qur'an reads: "[...] To God belongs the dominion of the heavens and the earth. He forgives whom He wills and punishes whom He wills. And ever is God forgiving and merciful."

[3] My own calculations based on the statistics of the UNCTAD database available online at http://unctadstat.unctad.org.

territories on a variety of issues, including religion. The data can be aggregated at the country level and used in macro-studies. Unfortunately, predominantly Muslim countries are still under-represented, and there is a lack of data for the sample of countries used in this study. To get around this issue and study the channels through which religion influences FDI in predominantly Muslim countries, two variables measuring the degree of progressiveness of the society and its openness to outsiders are constructed using data from the World Bank database. The first variable is a measure of tolerance towards foreigners, and shall be called external cultural openness. This variable is obtained by dividing the number of incoming tourists by the total population. A higher ratio implies a higher degree of external cultural openness. The second variable is a measure of attitudes towards women. This variable can be thought of as a measure of internal openness, that is openness within the same society, and it is equal to the share of seats taken by women in the parliament. The two variables are found to be strongly associated with religiosity. In particular, more religious involvement, measured by attendance and belief, tends to be associated with more conservatism and less openness to outsiders. The two variables are discussed in more detail in section 1.3 below.

The relationship between religiosity and economic performance is believed to run both ways. If religion by affecting the degree of openness of the society might have an influence on FDI, it is reasonable to hypothesize that more FDI, by increasing society's exposure to other cultures leads to less religious intolerance and conservatism, and hence to more external and internal openness. To deal with the potential problem of endogeneity, instrumental variables are used to pin down the sense of causation from religiously-motivated attitudes to FDI performance.

The remainder of the chapter is organised as follows. Section 1.2 provides a review of two studies relevant to the present chapter. Section 1.3 introduces the variables and describes the data used in the empirical analysis. Section 1.4 presents and discusses the results. Section 1.5 concludes the chapter.

1.2 Review of the Relevant Literature

Schneider and Frey (1985) argue that the decision of a multinational firm to invest overseas depends on expected higher profitability in the host economy compared to at home, and on political factors. Hence, the study of the determinants of FDI should be based on a model that takes into account both economic and political factors. According to Schneider and Frey (1985), this model, labelled the politico-economic model of FDI, should include four groups of variables: three of economic nature and one of political nature. The economic variables are measures of the internal and external economic conditions in the host economy, along with measures of the advantages offered by the labour market (e.g. skills). The political determinants should include variables reflecting the political situation of the host country such as an index of political instability. It is worth noting that given the world political context, Schneider and Frey (1985) suggest as a political variable the amount of aid received from the Soviet block.

Schneider and Frey (1985) estimate four different specifications and find that the model that includes both economic and political variables gives better results. The empirical results suggest that countries with good economic fundamentals

and enjoying political stability tend to be more attractive to FDI (Schneider and Frey, 1985).

The findings of Schneider and Frey (1985) are confirmed by other researchers. For example, in a recent review of the literature on the determinants of FDI, Blonigen (2005) documents that economic factors such as the exchange rate, trade, and the rate of tax have an influence on FDI decisions. Klein and Rosengren (1994) find that the depreciation of the exchange rate positively influences FDI in the United States. Similarly, Kiyota and Urata (2004) find that a depreciation of the host country exchange rate has a negative influence on Japanese investments overseas. The authors also find that high exchange rate volatility negatively influences Japanese investments overseas (Kiyota and Urata, 2004). Using a panel of eleven OECD countries over a period of 15 years, from 1984 to 2000, and four measures of corporate tax rates, Bénassy-Quéré et al. (2005) find that taxation has a significantly negative influence on FDI decisions.

With respect to political and institutional factors, Blonigen (2005) argues that factors such as political stability, legal protection, and expropriation risk influence FDI decisions. Low quality institutions increase the cost of doing business (Blonigen, 2005). These factors, according to Blonigen (2005), are of major importance in particular for developing countries. Examining the impact of corruption on FDI, Wei (2000) finds that countries with high levels of corruption are less attractive to FDI.

Recently the literature on the determinants of FDI has taken new directions.

The role of cultural factors is gaining increasing attention. One important dimension of culture is religion. In two recent studies, the authors examine the influence of religion and religiously-motivated attitudes on FDI. Dolansky and Alon (2008) exploit data on Japanese FDI to study the influence of religious tolerance in host countries on Japanese firms' decisions to invest. In their study Guiso et al. (2009) use data on bilateral FDI for a sample of European countries to study the influence of trust on FDI. Although trust in itself is not a religious attitude, the findings of the literature (Putnam, 1993; La Porta et al., 1997) suggest that it is influenced by religion.

In what follows I review the studies of Dolansky and Alon (2008) and Guiso et al. (2009). To avoid unnecessary repetition, a discussion of the limitations of the papers is provided at the end of the review.

1.2.1 Dolansky and Alon (2008)

In their study, *Religious Freedom, Religious Diversity, and Japanese Foreign Direct Investment*, Dolansky and his colleague examine the question of whether religious freedom in host countries influences Japanese investments decisions.

To address their research question, Dolansky and Alon (2008) formulate three testable hypotheses about the relationship between religion and FDI. Hypothesis 1—religious freedom has a positive influence on FDI; hypothesis 2—the existence of a state religion negatively influences FDI; hypothesis 3—religiously diverse countries are more attractive to foreign direct investors.

For the first hypothesis the authors argue that societies enjoying higher levels of religious freedom are more attractive to FDI because investors feel safer, and their property rights and other economically relevant rights are less likely to be jeopardized (Dolansky and Alon, 2008). The second hypothesis rests on the idea that countries with state religions are more likely to be intolerant towards other religions. Hence, these countries are likely to be less tolerant towards foreign investors who are of different religions. To support their argument, Dolansky and Alon (2008) report a negative and statistically significant correlation between the existence of a state religion and a measure of religious pluralism. With respect to the third hypothesis, Dolansky and Alon (2008) argue that "Barro and McCleary (2003) conclude that greater diversity leads to greater economic growth. Because FDI is a key component of economic growth (Drabek and Payne, 2001), it follows that religious diversity should stimulate FDI."[1] This hypothesis finds support in the positive correlation that Dolansky and Alon (2008) find between the index of religious pluralism and investment.

To test for their hypotheses, Dolansky and Alon (2008) consider three religion variables. The first variable is the Religious Pluralism Index obtained from Barro and McCleary (2003). The second variable, Religious Freedom Score, is a measure of the extent to which a society enjoys religious freedom. The data are obtained from Marshall (2000), and the score ranges between 1 and 7, with 1 referring to a religiously free country, and 7 referring to the lack of religious freedom. The third religion variable used in the empirical analysis is a dummy for the existence of state religion. This variable is obtained from the tabulations of Barrett et al.

[1]Dolansky and Alon (2008), p. 35.

(2001). The dummy takes the value 1 if the country has a de facto state religion, 0 otherwise. In addition to the explanatory religion variables, Dolansky and Alon (2008) employ two more variables as controls: GNP and cultural distance. Cultural distance is a measure of cultural dissimilarities between countries (Hofstede, 1980; Kogut and Singh, 1988).

The dependent variable used by the authors is the number of investments made by Japanese firms in each country. After dropping China, an outlier, and Latvia and Lithuania, because there are no recorded Japanese investments in these countries, Dolansky and Alon (2008) end up with a sample of 54 countries.

The FDI data used by Dolansky and Alon (2008) cover the period 1986–2001 and they are obtained from the database constructed by the company Tokyo Keizai. According to the information provided by the company on its website, Tokyo Keizai Inc. specializes in the publication of business-related materials and offers database services. The database offers data on overseas investments for a number of public and private Japanese companies.

The empirical analysis of Dolansky and Alon (2008) consists of two stages. The authors perform a multivariate analysis of covariance (MANCOVA), then a regression analysis. The empirical findings are reproduced in Table (1.1) below. Expectedly, the results of the multivariate analysis suggest a significant influence of GNP. Furthermore, religious pluralism is positively associated with Japanese FDI. However, the measures of religious freedom, the existence of a state religion, and an interaction term between the two variables are insignificant. The findings

of the MANCOVA analysis suggest that Japanese investors are more likely to be attracted by countries with large economies and higher levels of religious diversity.

Table 1.1: Dolansky and Alon (2008)—Religion and Japanese FDI

	MANCOVA	**Regression analysis**	
	Estimated F-statistic (1)	Estimated coefficient (2)	Estimated coefficient (3)
Intercept	2.88*	144.434*	-143.779
	(0.097)	(0.089)	(0.203)
GNP	106.95**	0.834**	0.767**
	(0.000)	(0.000)	(0.000)
Religious pluralism	13.08**		1173.959**
	(0.001)		(0.001)
Religious freedom	1.22		
	(0.276)		
State religion	0.03		
	(0.968)		
Religious freedom×state religion	0.31		
	(0.736)		
R^2	0.796	0.72	0.78

Notes: The p-values reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 10 percent level, respectively.

In the regression analysis, the authors use the religion variable that is found to have a significant influence on FDI in the MANCOVA analysis. A measure of cultural distance from Japan was also considered, but because it proved to be insignificant in a stepwise procedure it is dropped from the regression (Dolansky and Alon, 2008). Columns (2) and (3) of Table (1.1) reproduce the results of the regression.

Expectedly, the empirical findings show that GNP is positively associated with

FDI, and it explains 72 percent of the variation in Japanese investments overseas. Including the index of religious pluralism in the regression increases the overall explanatory power of the model to 0.78 (from 0.72). According to the results of the regression, after controlling for market size, religious pluralism explains 6% of the variation in Japanese FDI. Although Dolansky and Alon (2008) fail to demonstrate any significant influence of the existence of a state religion and religious freedom on FDI, they find evidence of a significantly positive influence of religious diversity on Japanese FDI. This impact, however, is small compared to the influence of the market size gauged by GNP.

As to why the variable state religion has an insignificant influence on FDI, Dolansky and Alon (2008) argue that this might be due to a measurement error. Alternatively, the authors argue that the existence of a state religion does not necessarily mean that the state is repressive of other religious expressions. For example, Scandinavian countries enjoy a relatively high level of religious freedom despite the existence of state religion. China, on the other hand, is a country with no state religion but tends to be repressive of religious expressions (Dolansky and Alon, 2008).

1.2.2 Guiso et al. (2009)

Although trust per se is not a religious attitude, it has been shown that it is influenced by religion. Putnam (1993) concludes that religion in Italy is hierarchical because it encourages the "vertical bond" of authority over "horizontal bonds" with other individuals. La Porta et al. (1997) find that hierarchical religions such as Catholicism, Orthodox Christianity, and Islam tend to be associated with low

levels of trust. Studying the relationship between religion and trust for a sample of American individuals, Guiso et al. (2006) find that different religious denominations and different degrees of religious involvement map onto different levels of trust. In particular, while trust is positively associated with being a Protestant, it is negatively associated with being a Hindu. Moreover, attending religious services is found to increase trust (Guiso et al., 2006).

The study of Guiso et al. (2009) examines the influence of trust on FDI for a sample of country members of the European Economic Area (EEA). Data on trust are obtained from the Eurobarometer Survey where samples of individuals from the various countries are asked about the degree to which they trust individuals from the different country members, including fellow citizens. Each participant is asked whether she or he has (1) no trust at all, (2) not very much trust, (3) some trust, or (4) a lot of trust.

Guiso et al. (2009) exploit these data on bilateral trust to see whether the extent to which the people of country i trust people of country j affects country i FDI decisions in country j. The dependent variable is FDI originating from country i in each of the other countries of the EEA. Other controls include press coverage, common language, and a dummy for shared borders.

Trust can be thought to have a two-way interaction with FDI. With trust considered as an independent variable, more trust leads to more FDI. However, with trust regarded as a dependent variable, one could hypothesize that more FDI, by increasing society's exposure to other cultures, leads to a higher level of trust.

In order to deal with the potential problem of endogeneity, Guiso et al. (2009) use instrumental variables to isolate the direction of causation from trust to FDI. The instruments are religious similarities and somatic distance. The somatic distance is a measure of how ethnically and genetically far apart two nations are, and it is constructed by using data on height, the colour of the hair, and the cephalic index (i.e. a measure of the size of the skull).

According to the results of the IV regression reported by Guiso et al. (2009), trust has a positive influence on FDI. Specifically, for a given pair of countries, a high level of trust between their peoples leads to a high level of bilateral FDI. Furthermore, having similar legal regulations and press coverage stimulate bilateral FDI. Expectedly, distance has a significantly negative impact on FDI. Surprisingly the results of the regression show that sharing the same language and having linguistic common roots are negatively associated with FDI. An interesting result is the positive influence of the transportation cost on FDI. Guiso et al. (2009) rationalize this result by appealing to the argument that transportation costs "act as a barrier to trade, which might induce direct investment as a substitute to export."[1] It is worth noting that in an GLS exercise, Guiso and his colleagues find that transportation cost is negatively associated with FDI, suggesting that a higher cost leads to less bilateral FDI.

Finally it is noteworthy that Guiso et al. (2009) do not use measures of economic fundamentals in their study. Classic candidate variables such as market size,

[1]Guiso et al. (2009), p. 1123.

the degree of integration into the world economy, and infrastructure are absent.

1.2.3 Summary of the Review

Dolansky and Alon (2008) study the influence of religion on the decision of Japanese firms to invest overseas. The authors find that religious diversity in host countries is positively associated with Japanese decisions to invest overseas. Exploiting data for a sample of EEA countries, Guiso et al. (2009) find that countries with high levels of bilateral trust tend to have high levels of bilateral FDI. The two studies, however, have some limitations. The purpose of this subsection is to highlight them.

One major problem with Dolansky and Alon (2008) is that the authors do not use instrumental variables in order to isolate the direction of causation from religion to FDI. A second issue is the choice of the explanatory variables. With respect to the religion variables, it is straightforward to notice the strong relationship between religious pluralism, religious freedom, and the existence of a state religion. The overlap between the three variables raises the question about the extent to which the three variables are picking up different aspects of religion. Also, Dolansky and Alon (2008) do not include measures of religious belief and attendance to control for religious commitment in society. Religious pluralism does not necessarily mean religious tolerance. A religiously diverse society might score highly in the pluralism index and be subject to religion-driven tensions.

In their regression analysis, Dolansky and Alon (2008) consider only GNP as a control variable. Schneider and Frey (1985) and Blonigen (2005) stress the impor-

tance of including other explanatory variables measuring the internal and external performance of the host country, its political stance, and the quality of its institutions. The failure to include additional controls raises the question as to whether the religion variables are picking up some indirect influence of economic variables left out of the equation.

The same critique applies to Guiso et al. (2009). The right hand side variables used in the regression do not include variables that are typically used in similar studies.

The paper of Dolansky and Alon (2008) studies the relationship between religion and Japanese investments overseas. On the other hand, the paper of Guiso et al. (2009) studies the relationship between trust and FDI for a sample of EEA countries. Hence, the question that arises is whether these findings can be generalized to other parts of the world, and how religiosity and religiously motivated attitudes other than trust and religious diversity influence FDI.

The aim of the present chapter is to make a contribution to the growing literature on the influence of religion on FDI by addressing the limitations underlying the papers reviewed above. Specifically, this chapter investigates the influence of religiously-driven attitudes on FDI for a panel of predominantly Muslim countries. Two variables measuring attitudes are considered: internal openness and external cultural openness. These variables gauge the extent to which the people of a given country have progressive views about the role of women in society, and the degree of openness to outsiders. The following section discusses these variables in more

detail.

1.3 Explanatory Variables and Data

In Muslim-majority countries attitudes about women and attitudes about strangers are heavily influenced by religion. The WVS is a mega-dataset offering data on variables measuring attitudes towards a variety of issues including attitudes towards the role of women in society and attitudes towards strangers. However, for the sample of countries I am employing in this chapter, data are available only for some countries. Given the lack of data, two variables measuring attitudes towards foreigners and women are constructed using the World Bank dataset. The first variable is derived as the ratio of international tourists to total population, and shall be called external cultural openness. The second variable is the share of seats taken by women in national parliaments, and shall be called internal openness (i.e. openness within the same society). These two variables are discussed in more detail below, along with the economic and political controls used in the regression.

1.3.1 Internal and External Cultural Openness

The WVS database offers data on religiosity for about 87 countries and territories. However, only few of the countries of my sample are covered. The World Bank database, although it covers variables not of religious nature, offers data on two variables that are strongly associated with religion. The first is the share of seats taken by women in the parliament. This variable gauges the extent to which women can assume "non traditional" responsibilities in society. The World Bank

database also offers data on the number of incoming tourists. This variable is weighed by the total population of the country, and it is intended as a measure of the extent to which a society is open to outsiders.

The pattern shown by the data reported in Table (1.2) suggests that less religious commitment tends to be associated with more progressive attitudes towards women and more tolerance towards immigrants. The data on these attitudes are obtained from the WVS dataset and are the closest to the attitude variables used in the present chapter, namely internal openness (i.e. share of women in parliament) and external cultural openness (i.e. ratio of incoming tourists to total population). The total number of observations ranges between 41,036 and 46,720 and they are relative to individuals from countries that have more than 50 percent of the population adhering to Islam.

In predominantly Muslim societies, the extent to which women participate in public affairs and the degree of openness to non-Muslims are heavily influenced by religion. The Qur'an, the founding text of Islam, and the body of Ḥadiṯ, a compilation of the acts and the sayings of Mohamed, the Prophet of Islam, are full of verses and passages that are interpreted by influential clerics in ways that encourage negative attitudes towards the role of women in society and intolerance towards non-Muslims. By these interpretations the ideal role of the woman is to be a housewife. With respect to non-Muslims, often described as "infidels," Muslims are advised to dissociate themselves from them.

Influential Muslim clerics have created and maintained a situation whereby

Table 1.2: Religiosity and Selected Economic Attitudes

	Religious person	God is important	Religion is important	Attend once a week	Attend once a month	Atheist
I do not like living next to foreign workers	0.090**	0.065**	0.103**	-0.006*	-0.039**	-0.035**
Yes, men make better politicians than women	0.055**	0.120**	0.160**	0.010	-0.023**	-0.019**

Notes: The data are obtained from the WVS dataset, and they are relative to individuals (Muslims and non-Muslims) living in countries that have more than 50 percent of the population adhering to Islam. The total number of observations is between 41,036 and 46,720 depending on the availability of data for each pairwise correlations. The symbols ** and * mean that the correlation coefficient is statistically significant at the 1 and 5 percent level, respectively.

many Muslims believe that holding these negative attitudes towards women and non-Muslims is part of the "correct" understanding of Islam.

Internal openness. The extent to which women participate in politics is an important indicator, if not the most important, on the prevalence of liberal and progressive views in predominantly Muslim countries. Women and their rights are still an issue of debate between conservatives and progressives. Based on a series of Qur'anic verses and Ḥadiṯs, conservatives are for a limited role of women in society. For example, addressing women, verse 33:33 of the Qur'an reads: "abide in your houses and do not display yourselves as [was] the display of the former times of ignorance [that is in the pre-Islamic era]."[1] This verse along with others are interpreted and understood in ways to promote the "ideal" woman as a housewife whose role is limited to raising children, cooking, and running the house affairs. In a widely circulated book (eleven editions in less than six years), Bakr Abu Zayd, a Saudi Muslim cleric, argues that given the differences between women and men, the former are made to work inside the house and the latter are made to work outside (Abu Zayd, 2005). According to Abu Zayd, campaigners for women rights in Saudi Arabia and other Muslim-majority countries are part of a conspiracy orchestrated by the "West" to deviate Muslims from their faith.

On the other hand, the progressive opinion, based on the universal values of human rights and secular ideologies, is in favour of more rights for women. In this sense, the increase of women's political participation is an indicator of the extent to which a society is moving away from religious conservatism towards embracing

[1]The Qur'an (2010), chapter 33 verse 33.

more progressive and liberal attitudes. This pattern is reflected by the correlations reported in Table (1.2): less religiosity is associated with more progressive views towards women.

The variable internal openness equals the share of seats taken by women in legislative bodies. This variable is expected to have a positive impact on FDI. In other words, countries enjoying higher degrees of internal openness will be more attractive to foreign investors.

External cultural openness. The attitudes a population has towards foreigners, who might be from different religious and cultural backgrounds, might influence the decision of foreign investors to invest. In this sense, countries with hostile attitudes towards strangers are expected to be less attractive to foreign investors.

Several texts and passages in the Islamic scriptures are understood in a way that encourages Muslims to dissociate themselves from non-Muslims and to think of them as inferior erring beings.[1] In some predominantly Muslim countries the government plays a role in the dissemination of such views. For example, backed with an ultra-conservative Wahabi ideology, the ruling family in Saudi Arabia invests in encouraging intolerant and negative views towards non-Muslims. For example, a middle school textbook published by the Saudi ministry of education explains that imitating Jews, Christians,[2] and "infidels" is harmful to Islam–the

[1]For Wahabism, an extremely literalistic interpretation of Islam that emerged in the 18th century in present-day Saudi Arabia, the category non-Muslims is broad enough to include Shi'ite Muslims.

[2]Masiḥiyun is the way to refer to Christians in Arabic. However, some fundamentalist Muslim clerics refer to Christians as Salibiyun, a derogatory term which means "Cross-worshippers."

only and exclusive way to salvation. In Egypt, where about 10 percent of the population is Christian, Wajdi Ghoneim, a popular Egyptian tele-Islamist, expressed his joy about the death of Pope Shenouda III. Ghoneim described the late Shenouda as the head of heresy and proclaimed that Egypt was relieved by his death.

The variable external cultural openness, which is a measure of the degree of a country's openness to the outside world, is equal to the ratio of international tourists to the total population of the host country. This variable is expected to have a positive influence on FDI, that is, more open societies are more attractive to foreign investors.

Islam emerged in the Arabian Peninsula in a population of Arabs and then spread out into other territories. Hence, it is possible that some aspects of Arab culture are misattributed to Islam. In order to disentangle the influence of being Muslim from that of being Arab, a dummy variable, Arab, is considered. The dummy takes the value 1 if the country is an Arab country, 0 otherwise. I also consider the Muslim share of the population in the regression.

1.3.2 Economic and Political Controls

Gross domestic product. GDP is a classic economic candidate variable. It proxies for the market size. Empirical evidence reveals a positive association between the size of the economy and FDI. Hence, the sign of the coefficient on GDP is expected to be positive, suggesting that foreign investors are attracted by larger markets.

Government consumption. Government consumption refers to the ratio of government consumption to GDP. The ratio is intended as a measure of the involvement of the government in the economy. Hence, the larger the ratio of governments consumption to GDP the lesser are the opportunities for the private sector. However, it is equally plausible to hypothesize that the relationship between FDI and government consumption is positive. This is possible when the government does not compete with foreign investors, and rather invests in sectors complementary to FDI.

Trade openness. The popular indicator of trade openness used in the literature is the share of trade (imports + exports) to GDP. Nevertheless, this measure of openness is somewhat crude because it might be picking up the country size rather than economic potential. Frankel and Rose (2002) find that physically large countries tend to trade less. Following Barro (2001) the trade ratio used in this chapter is filtered for the estimated relation of this ratio to land area (in log) and population (in log).

The sign of the coefficient associated with trade openness depends on the type of FDI. Asiedu (2002) argues that in the case of market-seeking investments (horizontal FDI), foreign investors will prefer higher barriers to entry to keep the competition outside the market. Conversely, for reasons related to transaction costs, export-seeking FDI (vertical FDI) will favour economies with low trade barriers and tariffs. On the other hand, Chakrabarti (2001) argues that a high degree of integration into the world economy is more likely to have a positive influence on FDI.

Infrastructure. UNCTAD (2002) argues that a proper measure of infrastructure should include roads and railway networks, along with telephone infrastructure. The availability of these facilities is important for foreign investors to coordinate production activity within country and across countries. The inclusion of these variables also captures the cost of transportation (UNCTAD, 2002). Unfortunately, because of massive lack of data on roads and railways for many countries, I only consider the number of telephone lines per 100 people, a standard practice in the literature. Countries with good infrastructure are expected to be more attractive to foreign investors.

Oil and gas. The extraction of oil and gas is an export-oriented activity. This activity will attract vertical FDI. In this sense, one might hypothesize a positive relationship between the oil/gas industry and FDI. However, Asiedu and Lien (2011) hypothesize a negative relationship between natural resources and FDI. The authors argue that "[w]hile natural resource exploration requires a large initial capital outlay, the continuing operations demand a small cash flow. Thus, after the initial phase, FDI may be staggered."[1] In their empirical analysis, Asiedu and Lien (2011) find a strong negative association between natural resources and FDI.

In order to test for the influence of natural resources on FDI, a dummy variable, oil/gas exporter, is generated. Any country with fuel exports making 20 percent or more of its total exports of merchandise is considered as an oil/gas exporting country. The oil/gas share of exports is computed as an average of the available data for each country over the sample period. It is not possible to consider the

[1]Asiedu and Lien (2011), p. 104.

actual ratio of fuel exports to total exports because of the massive gaps in the data.

Health. Human capital is controlled for by considering a measure of health condition. The variable is obtained as the average of the percentage of children aged 12 to 23 months immunized against DPT[1] and measles. A higher share of children vaccinated against communicable diseases means healthier and more productive workers. Alsan et al. (2004) argue that health has a direct effect on labour productivity: sick workers tend to be frailer and have higher rates of absenteeism. In their empirical analysis, Alsan et al. (2004) find that health has a significant influence on FDI.

Democracy index. As the literature indicates, political factors are as important as economic factors in influencing foreign investors' decision to invest. Evidence suggests that political stability and good-quality institutions have a positive influence on FDI (Wei, 2000; Blonigen, 2005). The study of Busse and Hefeker (2007) finds that countries enjoying the rule of law and having low levels of corruption are more attractive to foreign investors. To control for institutions, I consider an index of democracy. The existence of a functioning democracy is an indicator of political stability.

Table (1.3) provides a summary statistics of the variables used in the regression analysis. The figures are relative to the year 2006. The differences between the minimum and the maximum figures for all variables are significant, and suggests large disparities between the countries of the sample. For example, in 2006 the

[1]DPT stands for Diphtheria, Pertussis, and Tetanus.

highest stock of FDI per capita recorded was in Bahrain and stood at 10,659.80 dollars. However, the lowest was 11.62 dollars in Niger. With respect to GDP, the level figures (not reported in the table) show that Turkey's GDP is 1,330 times higher than Comoros's GDP. The trade ratio suggests that some countries are more integrated into international trade than others. According to the figures reported in Table (1.3) in 2006 Malaysia had the highest trade ratio, more than 200 percent, while Pakistan's trade ratio was the lowest and stood at 38 percent. According to the reported figures, the average share of women in parliament for the sample

Table 1.3: Summary Statistics of Variables, Year 2006

Variable	Obs.	Mean	S.D.	Min	Max
Stock of FDI per capita	38	1,406.38	2,617.51	11.62	10,659.80
Log of real GDP	38	23.68	1.84	19.78	26.98
Government consumption	38	13.31	4.99	4.94	27.96
Trade ratio	38	84.81	34.54	38.45	202.58
Infrastructure	38	9.99	8.96	0.20	32.06
Health	38	84.20	15.49	40.00	99.00
Oil/gas exporter	33	39.06	38.71	0.05	96.95
Democracy index	38	2.55	3.24	0	9
Internal openness	36	9.29	6.72	0.00	22.80
External openness	35	39.13	128.98	0.13	767.65
Muslim share	38	85.93	12.99	53.10	100.00
Arab country	38	0.50	0.51	0	1

Notes: Stock of FDI per capita is expressed in real US dollars. Government consumption and Trade ratio are expressed as shares of GDP. Health is the average share of infants aged 12 to 23 months immunized against four communicable diseases, namely DPT and measles. Oil/gas exporter is measured by the share of oil and gas exports of total merchandise exports. Internal openness and External openness are, relatively, the share of seats taken by women in national parliaments, and the ratio of international tourists to total population.

was about 9 percent. The figures also show that, in 2006, while Tunisia had the highest rate of internal openness, about 23 percent, Saudi Arabia and three other countries had no women in their national parliaments. External openness (i.e. the ratio of international tourists to total population) is another variable where the difference between maximum and minimum values is considerable. According to the figures reported in Table (1.3) Bahrain, a Gulf country, had the highest rate of external openness in 2006 (767.65 percent), while Turkmenistan had the lowest rate (0.13 percent). Finally, the figures reported in Table (1.3) show that half of the sample consists of Arab countries and that the average share of the population adhering to Islam is about 86 percent.

1.3.3 Description of the Data

Data on the variables listed above are collected for a sample of 38 predominantly Muslim countries, that is countries in which more than 50 percent of the population adheres to Islam. The share of the population adhering to Islam varies across countries of the sample from 53 percent in Chad to a reported 100 percent in Mauritania and Saudi Arabia. The countries are from various geographical locations. Nineteen countries or 50 percent of the sample are Arab countries (of which 6 are in the Arabian Peninsula). Seven countries are located in Sub Saharan Africa. Ten Asian countries or about 24 percent of the sample. Two countries are located in Europe. The list of countries is reported in Appendix A. Data are collected for a sample period of 10 years stretching from 1997 to 2006. The total number of observations is 315.

Data on the economic explanatory variables are collected from the World Bank

database. Tajikistan has missing data for telephone lines per 100 people (i.e. infrastructure) in 2006. The gap is filled in with the average computed using the observations relative to the years 2004 and 2005. The data on the stock of FDI are collected from the UNCTAD database. The democracy index is obtained from the Polity IV data set constructed by Marshall et al. (2010).[1]

The data on the share of women in parliament are obtained from the World Bank dataset, and supplemented with data from the Inter–Parliamentary Union database.[2] For Saudi Arabia, records show that in 2004, in the recently created non-elected senate, no women was nominated. Prior to 2004 there are no data. Based on the fact that the participation, if any, of women in politics in Saudi Arabia is very limited, and that if in 2004 in the newly founded senate there were no women, then it is plausible to assume that prior to 2004 there was zero chance for women to be nominated in this body. Thus, gaps are filled in with zeros. The same procedure is applied to Qatar.

1.4 Results and Discussion

The dependent variable is the stock of real FDI per capita (logged) in the host country. The motivation behind choosing stocks over flows is that the former is much less volatile than the latter, especially in small countries where the sectors that attract FDI are few. In addition to this advantage in working on stocks, Bénassy-Quéré et al. (2007) argue that foreign investors reason in terms of world-wide allocation of output, and hence in terms of stock of capital. The papers of

[1]The database is available online at http://www.systemicpeace.org.
[2]The database is available online at http://www.ipu.org/wmn-e/classif-arc.htm.

Cheng and Kwan (2000) and Bénassy-Quéré et al. (2007) are example of studies where the authors use the stock of FDI per capita as a dependent variable.

The stock of FDI per capita is regressed on internal openness (i.e. the share of women in the parliament) and external cultural openness (i.e. the ratio of international tourists to total population). Other controls are also included in the regression. As discussed above, in order to deal with the potential problem of endogeneity, instrumental variables are used to pin down the sense of causation from the openness variables to FDI performance. The instruments are the ratio of the coastline to total borders of the country; a dummy variable equals 1 if religion is referred to in the constitution, 0 otherwise; the distance in kilometre from Mecca, Saudi Arabia; a measure of religious pluralism; and dummies for four geographical locations: Europe, Sub Saharan Africa, Asia, and the Arabian Peninsula. According to the estimated coefficients of the first stage of the IV regression, reported in Table (A3) in Appendix A, the instruments are very strong for external cultural openness. However, they are less strong for internal openness. In particular, external openness has two instruments significant at the 1 percent level, and three instruments significant at the 5 percent level. However, internal openness has only one instrument, although strongly significant.

The results of the regression are reported in Table (1.4). Column (1) reports the results of a basic model that includes measures of economic fundamentals and an index of democracy. Column (2) reports the GLS results of the full FDI specification that includes both measures of openness (i.e. internal and external). Column (3) reports the results of the IV regression. Interestingly, the difference

Table 1.4: Internal and External Openness, and FDI

Stock of FDI per capita (logged)	GLS (1)	GLS (2)	IV (3)
Intercept	-7.015**	-0.213	0.930
	(2.290)	(2.314)	(1.955)
GDP (logged)	0.471**	0.309**	0.218*
	(0.102)	(0.098)	(0.085)
Government consumption	0.031**	0.035**	0.052**
	(0.011)	(0.012)	(0.018)
Trade openness	0.014**	0.016**	0.007*
	(0.002)	(0.002)	(0.003)
Infrastructure	0.038**	0.044**	0.062**
	(0.012)	(0.012)	(0.018)
Health	0.012**	0.007	-0.008
	(0.003)	(0.004)	(0.007)
Oil/gas exporter	-0.228	-0.568	-0.579*
	(0.411)	(0.378)	(0.275)
Democracy index	-0.083**	-0.072**	-0.048*
	(0.018)	(0.018)	(0.025)
Internal openness		0.012	0.102**
		(0.006)	(0.037)
External cultural openness		0.0003	0.007**
		(0.001)	(0.003)
Muslim share		-0.038**	-0.028**
		(0.014)	(0.010)
Arab country		1.177**	1.190**
		(0.394)	(0.338)
Wald χ^2	229.25**	247.66**	212.08**
Number of observations	358	315	315
Number of countries	38	37	37

Notes: Columns (1) and (2): random-effects GLS regression. Column (3): G2SLS random-effects IV regression. The instrumented variables are internal openness and external cultural openness. The instruments are the coastline as a percentage of total borders of the country; a dummy for the existence of a state religion; the distance in kilometre from Mecca, Saudi Arabia; a measure of religious pluralism; and dummies for the three geographical locations: Sub Saharan Africa, Asia, and the Arabian Peninsula. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

between the GLS and the IV coefficients on the attitude variables is large. For internal openness the IV coefficient estimate is eight times higher than the GLS's. For external cultural openness, on the other hand, the difference is even larger. The IV coefficient estimate is 23 times higher than the GLS coefficient estimate.

As discussed earlier, the relationship between FDI and openness (both internal and external) is a two-way interaction. The results of the Hausman test show that the null hypothesis that the difference between the GLS estimates and the IV estimates is not systematic is rejected. The χ^2 statistic of the Hausman test, reported in Table (A2) in Appendix A, reveals that the difference between the IV and the GLS coefficient estimates is statistically significant. This means that there is evidence of endogeneity and that the IV technique should be used.

Column (2) of Table (1.4) reports the results of the GLS estimation without controlling for endogeneity. According to the results of the GLS regression, the impact of openness on FDI is statistically not different from zero. However, after controlling for endogeneity, the IV results reported in Column (3) of Table (1.4) suggest that internal and external openness have a statistically significant influence on FDI.

According to the empirical findings, the economic variables, in general, have the expected signs and are in line with previous findings of the literature. Moreover, there is evidence that internal and external cultural openness have a significant influence on FDI, suggesting that culture in general, and religion in particular, matters.

In particular, the results of the regression reported in Column (3) suggest that the size of the economy, measured by real GDP (in log), and the availability of infrastructure have a statistically strong positive influence on FDI. Trade openness is positively associated with FDI, although the estimated coefficient is statistically insignificant. Surprisingly, government consumption has a positive coefficient, suggesting that countries with higher levels of government spending are more attractive to FDI. This positive association suggests that the government does not compete with foreign investors. Government spending, rather goes to sectors that encourage foreign investment. Health is the average of the percentage of children vaccinated against four communicable diseases every year. It is a measure of the health condition of the labour force. According to the results of the estimation reported in Column (3), health does not seem to have a statistically significant influence on FDI.

The estimated coefficient on oil/gas has a statistically negative sign. This result is in agreement with the findings of Mina (2007) and Asiedu and Lien (2011) who find that natural resources are negatively associated with FDI. Asiedu and Lien (2011) rationalize this negative relationship by appealing to the argument that "[w]hile natural resource exploration requires a large initial capital outlay, the continuing operations demand a small cash flow. Thus, after the initial phase, FDI may be staggered."[1] However, studying FDI performance for a sample of African countries, Asiedu (2006) finds a strong relationship between natural resources, measured as the share of fuel and minerals in exports, and FDI.

[1]Asiedu and Lien (2011), p. 104.

Countries with functioning democracies are less likely to experience political instability. Thus, countries scoring highly in democracy are expected to be more attractive to foreign investors. Surprisingly, according to the results of the regression, democracy has a statistically significant negative impact on FDI. A possible explanation is that changes in governments, although democratic, lead to significant changes in policies that negatively affect FDI.

Technically, it is possible that the unexpected negative sign associated with the democracy index is related to issues involving the construction of the index. Munck and Verkuilen (2002) provide a critique of the Polity IV indices (among them the democracy index used in this dissertation). The authors argue that the Polity IV indices suffer from some shortcomings related to the aggregation procedure and the omission of relevant factors. For example, the eleven dimensions used to construct the democracy index do not include a measure of participation, such as the right to vote and the fairness of the voting process (Munck and Verkuilen, 2002).

Now we turn our attention to the variables of interest. The empirical results suggest that religiously motivated attitudes have a significant influence on FDI in the host country. Using instrumental variables I find that societies holding progressive attitudes towards women and culturally open towards foreigners tend to be more attractive to foreign investors. According to the results of the IV regression reported in Column (3) of Table (1.4), an increase by 1 percentage point in internal openness, gauged by the share of women in the parliament, ceteris

paribus, leads to a 10 percent increase in the stock of FDI per capita. Moreover, all other variables being held constant, an increase by 1 percentage point in external cultural openness, measured by the ratio of tourists to population, leads to an increase of the stock of FDI per capita by about 1 percent. These findings confirm my hypothesis that countries enjoying higher degrees of openness, both internal and external, are more attractive to foreign direct investors.

According to the figures reported in Table (1.2), religious commitment tends to be associated with conservative attitudes towards women and strangers. In particular, individuals who believe in the importance of God and religion in life as well as individuals self-described as religious tend to think that women are not as good as men in politics. Also, they are inclined to dislike living next to foreign workers. However, less religious engagement is found to be associated with more positive attitudes towards women and tolerance towards strangers. Assuming that the associations found between religious behaviour and belief, on the one hand, and the attitudes, on the other hand, reflect cause-effect relationships running from religiosity to the economically relevant attitudes, then one might argue that there is a chain whereby religiosity influences individual attitudes towards women and strangers, which in turn affect FDI.

In several predominantly Muslim countries, hard-line clerics dominate the religious scene. Their discourse, based on a literalistic interpretation of the Islamic scriptures, disseminates negative attitudes towards women and encourages anti-Muslim feelings. Women are very often portrayed as inferior beings, weak, and constantly in need for assistance from men, obviously. With respect to non Mus-

lims, fundamentalist clerics openly refer to them as "infidels" and encourage their fellow believers to dissociate themselves from them. Over the years with the revolutionization of mass media, influential clerics have established themselves as *the authority* in religious matters.[1] Hence, the mere opinion of a cleric is understood by the majority of Muslims not as *a possible interpretation* of Islamic scriptures, but as *the understanding* of Islam. In such circumstances the average Muslim is lead to believe that holding negative attitudes towards non-Muslims and women are part of the "correct" understanding of Islam.

The results of the regression reported in Table (1.4), also suggest the existence of a residual influence of religion captured by the significant coefficient on the Muslim share of the population. Countries with higher shares of the population adhering to Islam are less attractive to foreign direct investors. Finally, the results also show that, on average, Arab countries are more attractive to foreign investors compared to the rest of the countries of the sample.

1.5 Concluding Remarks

In this chapter I examined the influence of religiously motivated attitudes on FDI for a panel of predominantly Muslim countries over a sample period of 10 years stretching from 1997 to 2006. Instrumenting for internal openness and external

[1] In an interview with Der Spiegel in 2005, Yusuf Qaradawi, an influential Muslim cleric says: "[in Islam] we don't have a pope; we have the Ulama, [that is] the association of scholars." Qaradawi adds: "[a] person can't just call himself an imam or a mufti and hand out fatwás according to whim. For this position there are clear prerequisites regarding professional experience, academic background and character." Qaradawi does not deny the existence of an institution of clergies in Islam. His answers are indicating the existence of a church-like in Islam. The full interview with Qaradawi can be found online at http://www.spiegel.de/international/spiegel-interview-with-al-jazeera-host-yusuf-al-qaradawi-god-has-disappeared-a-376954.html

cultural openness, respectively measuring attitudes towards women and foreigners, I show that countries with higher degrees of openness are more attractive to foreign investors. The results also suggest that countries with larger shares of the population adhering to Islam tend to be less attractive to foreign direct investors. Moreover, there is evidence that Arab countries, on average, outperform other predominantly Muslim countries in attracting FDI.

The cultural external openness and internal openness are found to be strongly associated with measures of religiosity. In particular, individuals who believe in the importance of God and religion in life are strongly associated with negative attitudes towards women and intolerance towards foreigners. If we were to assume that religion produces these negative attitudes, then one might tentatively argue that there is a chain whereby religiosity in predominantly Muslim countries affects FDI by influencing individual attitudes towards women and strangers.

Two questions follow from the findings of this chapter. The first question is whether the insights with respect to FDI also hold for other domains of economic activity. In particular, the question I ask is whether differences in religious behaviour map onto different levels of economic growth. This question is examined in the following chapter.

The second question follows from the pattern of correlations between religiosity and the attitude variables. Different patterns of religious behaviour are associated with different degrees of internal and external openness. The question, then, is how different patterns of religious behaviour map onto other economically relevant

attitudes. The question gains further prominence from the statistically strong negative association between the Muslim share of the population and FDI found in this chapter. The statistically significant relationship suggests a residual influence of religion that is not accounted for by the two measures of openness used in this study.

To sum up, two questions immediately follow and will be taken up in the remainder of the thesis. First, do insights with respect to the relationship between religion and FDI in predominantly Muslim countries also hold for economic growth? Second, how different patterns of religious behaviour map onto economically relevant attitudes?

Chapter 2

Religious Behaviour and Economic Growth

2.1 Introduction

The debate over the determinants of economic growth has taken new directions in recent years. Economists are increasingly interested in the role of religion in influencing economic growth. In the recently published literature, empirical findings suggest that religion has a significant influence on economic growth (Barro and McCleary (2003); Noland (2005); McCleary and Barro (2006), for example).

However, these empirical studies have paid little attention to Islam in its connection with economic growth. The purpose of this chapter is to examine the influence of religious behaviour, gauged by belief and attendance, on economic growth in countries with substantial Muslim presence.

The central argument of the literature is that religion affects economic growth by influencing individual values and attitudes. For example, a religion that encourages thriftiness, honesty, and cooperation with fellow workers/citizens is expected to have a positive impact on economic growth. In this respect, houses of worship play a central role in fostering these attitudes and in playing the role of social clubs were people congregate. Putnam (2000) and Sacerdote and Glaeser (2001) argue that places of worship and temples, by fostering networks of relations between worshippers, play an important role in building social capital. This social capital, if productive, could have a positive influence on economic performance.

Empirical evidence suggests that different systems of beliefs map onto different levels of economic growth. La Porta et al. (1997) find that hierarchical religions, such as Islam, are correlated with low levels of trust. Countries with low levels of trust tend to be associated with "less efficient judiciaries, greater corruption, lower-quality bureaucracies, higher rates of tax evasion, lower rates of participation in civic activities and professional associations, a lower level of importance of large firms in the economy, inferior infrastructures, and higher inflation."[1] According to Acemoglu et al. (2005), this type of institutions leads to poor economic performance.

Barro and McCleary (2003) and McCleary and Barro (2006) examine the influence of religiosity and attendance on economic growth. Instrumenting for religious belief and attendance, the authors find that higher levels of religious intensity, measured by belief in hell, lead to higher rates of economic growth. However,

[1]La Porta et al. (1997), p. 337-38.

attending religious services has the opposite impact. Moreover, the authors find a negative relationship between the Muslim share of the population and economic growth (Barro and McCleary, 2003; McCleary and Barro, 2006). Using the growth rate of total factor productivity as a measure of economic development, Noland (2005) finds that the Muslim share of the population has a positive influence on growth. It is worth noting that Noland (2005), unlike Barro and McCleary, does not control for beliefs and attendance.

The negative association found in the literature between Islam and economic performance is based on samples in which predominantly Muslim countries are typically under-represented. For example, the findings of La Porta et al. (1997) are based on a sample of 40 countries with only Turkey, a predominantly Muslim country, and Nigeria being the only other country with a substantial Muslim presence. Similarly, the negative relationship between the Muslim share of the population and economic growth found by Barro and McCleary (2003) is based on a sample with only seven percent are predominantly Muslim countries.

In this chapter I exploit the WVS database to examine the influence of religious beliefs and attendance on economic growth for a panel of countries with larger Muslim representation.

The remainder of the chapter is organised as follows. The following section provides a review of three papers relevant to the present chapter. Section 2.3 introduces the empirical strategy and the data used in the regression analysis. Section 2.4 reports the results of the regression and discusses the empirical findings.

Section 2.5 concludes the chapter.

2.2 Review of the Relevant Literature

In the recently published literature, three papers are of particular relevance to this chapter. These papers are Barro and McCleary (2003), McCleary and Barro (2006), and Noland (2005). This section provides a review of the three studies. At the end of this section a summary review is provided where the limitations of the studies are highlighted.

2.2.1 Barro and McCleary: Two Studies

Barro and McCleary co-authored two papers: *Religion and Economic Growth across Countries* (Barro and McCleary, 2003), and *Religion and Economy* (McCleary and Barro, 2006). In both papers, the authors follow the same empirical strategy to examine the influence of religion on economic growth. The 2006 paper exploits data for a slightly larger sample of countries, but uses less religiosity variables. Both studies reach similar conclusions.

Given the similarities in empirical strategies and findings between McCleary and Barro (2006) and Barro and McCleary (2003), I use "Barro and McCleary" and "McCleary and Barro" interchangeably to refer to both papers, unless stated otherwise.

The specifications that Barro and McCleary use in both papers to study the influence of religion on economic growth can be expressed in the following generic

form

$$Growth = \beta_0 + \beta_1 X + \beta_2 Religion + \epsilon \tag{2.2.1}$$

where $Growth$ is the growth rate of per capita GDP, X is a vector of economic and political variables, and $Religion$ is a vector of variables measuring the intensity of religious belief and the frequency of temple attendance. The religiosity variables used by Barro and McCleary (2003) are belief in hell, belief in heaven, monthly temple attendance, and seven religious denominations. In the study of McCleary and Barro (2006), however, the authors use only belief in hell as a measure of religiosity and eight religion shares of the population.

Acknowledging the potential problem of endogeneity, McCleary and Barro use instrumental variables to isolate the sense of causation from religion to economic growth. The instruments are a measure of religious pluralism based on the Herfindahl index for the religion shares; the religion shares of the population; a dummy variable for the existence of state religion; and an indicator for the regulation of the religion market.[1]

Data on belief in hell, belief in heaven, and monthly temple attendance are collected from the WVS dataset and supplemented by data from the Gallup and the ISSP surveys. It is worth noting that the ISSP surveys compile data on belief in hell and belief in heaven in a way different from the WVS. While the WVS follows a yes/no format to collect the answers to the question of whether the person believes in hell and heaven, the ISSP survey offers six options: "(1) yes, definitely;

[1]The regulation of the religion market is measured by a dummy variable that takes 1 if the state appoints the religious leaders in the 1970s, 0 otherwise.

(2) yes, probably; (3) no, probably not; (4) no, definitely not; (5) can't choose, don't know; and (6) NA, refused." Barro and McCleary do not explain how they accommodate the ISSP data on belief to the WVS data.

Barro and McCleary (2003) exploit data from the first three waves of WVS. In the first wave, 1981-1984, 38 countries are observed; in the second wave, 1990-1993, 41 countries are observed; and in the third wave, 1995–1997, 39 countries are observed. The authors use the second wave of the WVS (1990-1993) which covers slightly more countries compared with the two other waves as a reference to compile the attendance and religiosity data. For countries with missing observations in 1990-93, Barro and McCleary (2003) use data from the other WVS waves to fill in the gaps. If the WVS waves do not offer data to fill the gaps, the authors use the data on a similar variable from the ISSP and the Gallup surveys. McCleary and Barro (2006) follow the same procedure in the compilation of data on religiosity, although there is a fourth WVS wave considered in the study.

The strategy of waves followed by the WVS in conducting the surveys makes it more suitable to consider relatively short periods of growth. Nonetheless, in both studies Barro and McCleary consider three periods of 10 years each: 1965-1975, 1975-1985, and 1985-1995. This means that the religiosity variables sometimes postdate the dependent variable. Although Barro and McCleary (2003) acknowledge this problem, they argue that this should not pose a problem since religiosity is relatively stable over time.

The dependent variable is the growth rate of real per capita GDP over the

three 10-year periods: 1965-1975, 1975-1985, and 1985-1995. Data on GDP per capita are obtained from the Penn World Tables. Data on the socio-economic explanatory variables are compiled from the World Bank database. McCleary and Barro also include in the regression analysis an indicator of democracy obtained from the Freedom House dataset.

For some explanatory variables data are collected as values at the start of each period (e.g. GDP per capita, and the rate of male secondary school attainment). For other explanatory variables, such as the share of investment to GDP and the share of government consumption to GDP, data are calculated as averages for each of the three 10-year periods.

In Table (2.1) below, I reproduce the results of Barro and McCleary (2003). It should be noted that the authors only report the results relative to the religion variables. Other control variables are included in the regression but their coefficients are not shown.

The findings of Barro and McCleary (2003) suggest that religion has a statistically significant influence on economic performance measured by economic growth. In particular, attending formal religious services once a month has a negative impact on economic growth. Barro and McCleary (2003) rationalize the negative relationship by appealing to the argument that spending time in religious services takes resources away from the economy.

With respect to the cognitive dimension of religion, there is evidence that be-

Table 2.1: Barro and McCleary (2003) — Belief and Attendance, and Economic Growth

	(1)	(2)	(3)	(4)	(5)	(6)
Monthly attendance	-0.0095***	-0.0156***	-0.0104***	-0.0123***	-0.0092***	-0.0154***
	(0.0018)	(0.0044)	(0.0023)	(0.0043)	(0.0020)	(0.0046)
Belief in hell	0.0094***	0.014***			0.0104***	0.0174**
	(0.0025)	(0.0058)			(0.0040)	(0.0083)
Belief in heaven			0.0069**	0.0076	-0.0012	0.0039
			(0.0029)	(0.0048)	(0.0040)	(0.0068)
Eastern religion share		-0.01		0.003		-0.013
		(0.011)		(0.009)		(0.012)
Hindu share		-0.034**		-0.03		-0.04**
		(0.016)		(0.017)		(0.018)
Jewish share		-0.004		0.006		-0.006
		(0.014)		(0.013)		(0.015)
Muslim share		-0.032**		-0.012		-0.034**
		(0.015)		(0.010)		(0.015)
Orthodox Christian share		-0.05**		-0.029		-0.051**
		(0.021)		(0.017)		(0.021)
Protestant share		-0.015**		-0.018**		-0.012
		(0.007)		(0.008)		(0.008)
Other religion share		-0.001		-0.001		-0.001
		(0.015)		(0.016)		(0.015)
Number of countries	41	41	41	41	41	41
Number of observations	118	118	118	118	118	118

Notes: The standard errors reported in parentheses. The symbols *** and ** mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

lief in hell and belief in heaven have a positive influence on economic growth. According to the results of the estimation, belief in hell has a statistically significant influence on economic growth across the various specifications. On the other hand, belief in heaven is only significant in one specification, where the religion shares and belief in hell are excluded. A comparison of the magnitude of the coefficients show a larger coefficient on belief in hell. According to the authors, this is an "indication that the fear of hell is more potent for economic growth than is the prospect of heaven."[1]

The results of the regression suggest that the belief and attendance variables do not account for the total effect of religion. Some residual influence is picked up by the religious groups. According to the estimated coefficients, the Hindu, the Muslim, the Christian Orthodox, and the Protestant shares of the population have a statistically significant negative influence on economic growth. While the Muslim share of the population has a lesser negative impact on economic growth than the Hindu and the Christian Orthodox shares, it has a stronger negative impact than the Protestant share of the population.

To sum up, the findings of Barro and McCleary suggest that while some aspects of religiosity have a negative influence on growth, others have the opposite impact. McCleary and Barro argue that the overall influence of religion "depends on the extent to which a rise in attendance leads to greater beliefs."[2] It also depends on the extent to which belonging to a particular denomination implies observance. Marchisio and Pisati (1999) find that while 90 percent of the sur-

[1]Barro and McCleary (2003), p. 779.
[2]Ibid.

veyed Italians define themselves as Catholics, only 54 percent reported that they believe in Catholicism without reservations. The findings of Marchisio and Pisati (1999) suggest that people might associate themselves with a certain system of beliefs, without necessarily meaning an adherence to the same model of religiosity.

McCleary and Barro (2006) replicate the 2003 exercise for a slightly larger sample of countries, in which Muslim-majority countries are still under-represented. Compared to the 2003 study, McCleary and Barro (2006) use monthly temple attendance and belief in hell as a measure of religious belief. It is likely that the authors dropped belief in heaven from their 2006 study because it shows less robustness compared to belief in hell in the 2003 paper (see Table (2.1) above).

The empirical strategy of McCleary and Barro (2006) follows Barro and McCleary (2003). The instrumental variables used to isolate the effect of religion on economic growth are similar to those used in the 2003 paper: a measure of religious pluralism constructed from the religion shares of the population and derived as 1 minus the Herfindahl index; the religion shares of the population; a dummy variable for the existence of state religion; and an indicator for the regulation of the religion market. The instrumented variables are monthly temple attendance and belief in hell.

Like in the study of Barro and McCleary (2003), McCleary and Barro (2006) find that attending a temple once a month has a negative influence on economic growth, while believing in hell has a positive influence. Results also suggest that the Muslim and the Protestant shares of the population have a negative influence

on economic growth. Furthermore, agreeing with Barro and McCleary (2003), McCleary and Barro (2006) find that the Muslim share of the population has a stronger negative influence on economic growth compared to the Protestant share. In one specification, McCleary and Barro (2006) exclude the attendance and belief variables, and only include the religion shares of the population. According to the results of the regression, the coefficient on the Protestant share remains negative and significant. By contrast, the coefficient on the Muslim share of the population becomes insignificant. The results of the regression also suggest that adhering to Hinduism has a positive influence on economic growth.

2.2.2 Noland (2005)

Noland (2005) examines the influence of religion on economic growth with a focus on Islam. The author estimates a set of specifications that can be expressed generically as in (2.2.1). The dependent variable, measuring growth, takes two forms: the growth rate of per capita GDP, and the growth rate of total factor productivity (TFP). It should be noted that unlike Barro and McCleary, Noland (2005) does not control for attendance and beliefs. He only uses the religion shares of the population. To simplify the exposition of Noland's findings, in what follows I refer to the specification where the dependent variable is the growth rate of per capita GDP as the per capita regression. However, when the dependent variable is the growth rate of TFP, the specification is referred to as the TFP regression.

The paper of Noland (2005) consists of three parts. Part one, which is rather general, examines the impact of religion on economic growth. Various religious groups are employed, including the Muslim share of the population. In part two

the author focuses on Islam by examining the question of whether Islam is a drag on growth. In part three, the author examines the impact of religion on growth in three countries with substantial Muslim presence. These countries with their respective shares of the population adhering to Islam are Ghana (15.90), India (13.40), and Malaysia (60.40).

Religion and Economic Growth

Using data for a cross section of countries, part one of Noland's paper estimates a model of economic fundamentals along with seven religious shares of the population. The religious groups are Muslims, Hindus, Buddhists, Orthodox Christians, Catholics, Jews, and Protestants. The dependent variables are the growth rate of GDP per capita over 1970-1990, and the growth rate of TFP over 1973-1984. According to the empirical results, the estimated coefficients on the economic variables have the expected signs. In particular, initial GDP per capita is negatively associated with economic growth, suggesting that the countries of the sample exhibit convergence conditional on the other variables. Moreover, both capital accumulation, measured by the ratio of investment to GDP, and education are positively associated with economic growth.

With respect to religion, only two religious groups out of the seven included in the regression have a significant influence on economic growth, measured by the growth rate of GDP per capita. According to the results of the regression, both the Catholic and the Protestant shares of the population have a negative influence on economic growth. The results for the other religious groups, including the Muslim share of the population, are insignificant. In the TFP regression none of

the religion shares is significant.

Next, Noland (2005) studies the influence of religion, always measured by the religion shares of the population, on economic growth for a longer period of time. The dependent variable is the growth rate of GDP per capita, calculated over a period of 86 years, stretching from 1913 to 1998. In the absence of conventional economic variables, Noland (2005) uses latitude, Nobel laureates per capita, and a democracy indicator. The sample size consists of 34 countries, including Turkey the only Muslim-majority country.

According to the results of the regression, religion has a positive influence on economic growth. The coefficients associated with the Buddhist and the Orthodox Christian shares of the population are statistically significant and have positive signs. Furthermore, there is evidence, though statistically weak, that adhering to Catholicism and Protestantism has a positive influence on economic growth.

To sum up, with respect to Islam, part one of the study of Noland (2005) finds a statistically insignificant influence of the Muslim share of the population on economic growth. It is noteworthy that this result is in agreement with Barro and McCleary (2003) and McCleary and Barro (2006) who find that after excluding the attendance and belief variables, the impact of the Muslim share is statistically not different from zero.

Islam and Economic Growth

In part two, Noland (2005) looks into the question of whether Islam has a negative influence on economic growth. Two dependent variables are considered: the growth rate of TFP over the period 1973-1984, and the growth rate of per capita GDP over the period 1970-1990. The sample consists of a cross section of countries and the total number of observations is 50 for the TFP specifications, and 78 for the GDP per capita specifications.

In the regression analysis, the author considers the Muslim and the Arab shares of the population. The Arab share of the population is included in the regression to disentangle any influence of the Islamic faith from that of Arab culture. The two variables are considered in two different forms: as simple shares of the population, and as the shares of the population weighed by the distance between Mecca and the capital city of each country in the sample. Noland (2005) argues that dividing the Muslim share of the population by the distance proxies for the various interpretations of Islam and the variety of Islamic beliefs across countries. On the other hand, weighing the Arab share of the population by the distance between Mecca and the capital city controls for the attenuation of Arab and Middle Eastern culture taken by Arabs to other territories as Islam spread out.

Table (2.2) below reproduces the results of the regression as reported by Noland (2005). It should be noted that Noland does not include the Muslim and the Arab shares of the population together in one equation, he rather considers them separately.

Table 2.2: Noland (2005)—The Muslim and the Arab Shares of the Population, and Economic Growth

	TFP 1973-1984	TFP 1973-1984	Growth 1970-1990	Growth 1970-1990	TFP 1973-1984	TFP 1973-1984	Growth 1970-1990	Growth 1970-1990
Intercept	-1.210	-0.582	0.147	0.413	-0.225	0.200	0.668	0.736
	(-1.22)	(-0.59)	(0.20)	(0.60)	(-0.23)	(0.19)	(0.97)	(1.05)
Initial GDP per capita	-0.001***	-0.001***	-0.000***	-0.000***	-0.001***	-0.001***	-0.000***	-0.000***
	(-2.86)	(-3.01)	(-3.88)	(-3.88)	(-3.01)	(-3.08)	(-3.87)	(-3.80)
Investment share	0.040	0.041	0.076***	0.075***	0.036	0.040	0.072***	0.074***
	(1.11)	(1.13)	(3.08)	(3.04)	(1.01)	(1.13)	(2.93)	(3.00)
Government share	-0.043*	-0.070	-0.025	-0.033	-0.076	-0.103*	-0.039	-0.042
	(-1.00)	(-1.42)	(-1.01)	(-1.31)	(-1.59)	(-2.00)	(-1.52)	(-1.58)
Openness	-0.011	-0.010	-0.004	-0.003	-0.010	-0.011	-0.004	-0.004
	(-1.03)	(-1.00)	(-0.52)	(-0.44)	(-1.02)	(-1.11)	(-0.51)	(-0.5)
Education	0.022***	0.856***	0.597***	0.576***	0.813***	0.817***	0.562***	0.541***
	(2.10)	(2.92)	(3.82)	(3.73)	(2.95)	(3.02)	(3.71)	(3.58)
Net oil exporter	0.526	0.381	0.232	0.219	0.210	0.526	0.075	0.232
	(0.65)	(0.45)	(0.40)	(0.38)	(0.25)	(0.65)	(0.13)	(0.40)
Muslim	0.022**		0.013					
	(2.10)		(1.66)					
Muslim/Distance		29.908*		15.150				
		(1.88)		(1.52)				
Arab					0.042**		0.024*	
					(2.30)		(1.88)	
Arab/distance						48.393**		20.874*
						(2.55)		(1.74)
R^2	0.23	0.28	0.3	0.31	0.26	0.28	0.31	0.31
Number of Observations	50	50	78	78	50	50	78	78

Notes: The t-statistics reported in parentheses. The symbols ***, **, and * mean that the coefficient is statistically significant at the 1, 5, and 10 percent level, respectively.

According to the results of the estimation, initial GDP per capita has the expected negative sign, suggesting that the countries of the sample exhibit convergence. The ratio of investment to GDP and education have positive coefficients, suggesting that more capital accumulation and more schooling lead to more growth.

Regarding the influence of culture on economic growth, the empirical results show that the Muslim and the Arab shares of the population are only significant in the TFP regressions. According to the estimated coefficients, countries with larger Muslim and Arab populations tend to be associated with good economic performance measured by the growth rate of TFP.

Islam and Economic Growth: Country Level Analysis

In the third and final part of his study, Noland (2005) examines the influence of Islam on economic performance at the country level. Three countries with substantial Muslim presence are selected. The countries with their respective Muslim share of the population are Ghana (15.9), India (13.4), and Malaysia (60.4).

For the Indian case, the author considers two specifications. In the first one the dependent variable is the growth rate of TFP over a period of 20 years, from 1973 to 1993. In the second specification the dependent variable is the growth rate of GDP per capita over a period of 15 years, from 1981 to 1996. The explanatory variables consist of a set of economic variables along with six religious groups, including the share of the population adhering to Islam.

According to the results of the estimation, adhering to Buddhism and Jainism has a statistically significant positive impact on economic growth, measured by the growth rate of per capita income. The influence of the Muslim share of the population is not statistically different from zero. In the TFP regression, however, none of the religion shares has a statistically significant influence.

Like India, Malaysia is a religiously diverse country. Statistically, about 60 percent of Malaysians are Muslims and Islam is the religion of the state. After controlling for economic factors, the results of the regression suggest that Islam and Buddhism, measured by their respective shares of the population, have a negative influence, although statistically weak, on economic growth in Malaysia. It is worth mentioning that the significance of the Muslim share of the population improves once the economic controls are excluded from the regression.

The last case in the country-level analysis is Ghana. According to the results of the regression, there is a positive relationship between the Muslim share of the population and economic growth. This suggests that areas with larger Muslim shares of the population tend to outperform other parts of the country.

To sum up, in the country-level analysis evidence on the influence of Islam is mixed. Measured by the Muslim share of the population, Islam has a positive influence on economic growth in Ghana, whereas in Malaysia its influence is negative. With respect to India, the Muslim share of the population has a statistically insignificant impact on economic growth.

2.2.3 Summary of the Review

In their 2003 and 2006 studies, Barro and McCleary examine the influence of religious beliefs and attendance on economic growth for a panel of predominantly Christian countries. Instrumenting for the religiosity variables, the authors find that religious belief leads to higher levels of economic growth, whereas attending religious services has a deleterious effect. Running regressions on cross-country and within-country data, Noland (2005) finds that religion, measured by the religion shares of the population, has an influence on growth, measured by the growth rate of per capita GDP and the growth rate of TFP. According to the findings of Noland, Islam, when it influences economic growth, has a positive impact.

However, the three studies have some limitations. All studies use samples of countries that are predominantly Christian, and predominantly Muslim countries are relatively under-represented. Hence, the natural question that follows is whether the findings of the literature hold for a sample with larger Muslim representation.

With respect to Noland (2005), the author uses the religion share of the population as the sole measure of religion. Noland (2005) does not use any measures of religious behaviour, such as temple attendance and religious beliefs. The problem with the religion share is that it is too broad to be analytically meaningful.

A further issue with Noland (2005) is the econometric handling of the Muslim and the Arab shares of the population. In his examination of whether Islam is a drag on growth (results reproduced in Table (2.2) above), Noland does not

consider a specification where both variables, the Muslim and the Arab shares of the population, are included. This is a serious problem since it is unknown which variable is doing the explanatory work.

The use of the growth rate of TFP as a measure of economic growth is problematic. An examination of the results reproduced in Table (2.2), above, show that the Muslim share of the population is only significant in the specifications where the dependent variable is the growth rate of TFP. It is well known that the TFP observations are obtained as estimates, and, hence, subject to the production function used, its underlying assumptions, and the right hand side variables employed. It is questionable, then, whether the growth rate of TFP is a reliable measure of economic performance.

Compared to Noland (2005), who does not include measures of attendance and religious intensity in his study and does not control for endogeneity, the studies of Barro and McCleary represent more rigorous attempts to examine the influence of religion on economic growth. Unlike Noland (2005), Barro and McCleary (2003) and McCleary and Barro (2006) consider measures of religious engagement along with the religion shares of the population.

However, the strategy followed by McCleary and Barro in compiling the data on religiosity and the choice of the belief variables suffer from some limitations. Based on the assumption that religious behaviour is relatively stable over time, Barro and McCleary (2003) and McCleary and Barro (2006) aggregate the data on attendance and beliefs from the different waves of the WVS, with levels geared

towards 1990-1993.

The argument about the stability of religious behaviour over time is questionable. Maalouf (1998) argues that people tend to emphasize the dimension of their identity that they feel is most threatened. Studying discrimination against Muslims and Islamophobia after September 11, Sheridan (2006) finds that there is a widespread feeling among Muslims that there is an increase in discrimination and racism. Racism, discrimination, and the association of Islam with terrorism, fuelled the feeling among Muslims that Islam is targeted. In retaliation, Muslims, reportedly, became more religious. In their book *The Muslim World After 9/11*, Rabasa et al. (2004) report that the Tunisian society became more religious after 2001. Similarly, "The Arab Muslim American Federation of New York reported that, after 9/11 attacks, Muslim attendance at New York City mosques doubled."[1]. More recently, after the toppling of Ben Ali in Tunisia, the country has "witnessed a surge of religiosity within society following the liberation of mosques and the support of religious freedom."[2]

Another issue with the studies of McCleary and Barro is the choice of the belief variables. Barro and McCleary (2003) and McCleary and Barro (2006) use belief in heaven and belief in hell as measures of religiosity. These beliefs are not robust across religions. In some faiths, such as Hinduism and Buddhism, the process of salvation and damnation takes forms other than heaven and hell. In this sense, not believing in hell and heaven does not mean any less religious commitment.

[1]Abu Ras et al. (2008), p. 156

[2]Ghanmi, M. (2012). Religiosity on the Rise in Post-Revolution Tunisia. Magharebia (Media Report), 3 August.

In this chapter I address the issues outlined above, and investigate the influence of religion of economic growth for a panel of countries with substantial Muslim presence. More than sixty percent of the countries of the sample have 50 percent or more of the population adhering to Islam. The following section outlines the empirical strategy.

2.3 Empirical Strategy

Following Barro and McCleary, I estimate a specification that can be expressed as in (2.2.1), namely

$$Growth = \beta_0 + \beta_1 X + \beta_2 Religion + \epsilon$$

where *Growth* stands for growth rate of real GDP per capita, X is a vector of economic and political variables, and *Religion* is a vector of variables measuring religious behaviour. The model, above, is estimated for a panel of countries with substantial Muslim presence.

Over the years more Muslim-majority countries are covered by the WVS. Nonetheless, these countries are still under-represented and their total number remains relatively small. In order to maximize the number of observations, countries with a Muslim share of the population of 10 percent and more are selected. The total number of countries in the sample is 27 and the sample period covers four waves of 5-years each stretching from 1990 to 2010. Nevertheless, because not all countries are observed each wave the total number of observations is 50.

The sample consists of five Arab countries, that is 18 percent of the sample size. Seven countries, that is 26 percent of the sample, are located in Sub-Saharan Africa. Nine countries, that is one third of the sample, are located in Asia. Twenty-two percent of the countries of the sample had Soviet-style governments in the past. Countries with a Muslim share of the population of 50 percent and more represent about 63 percent of the sample. The list of the countries is reported in Table (B1) of Appendix B.

Since 1990 the WVS surveys are conducted every five years. The strategy followed by WVS makes it natural to compile data on the dependent variable, economic growth rate, over relatively short periods. In the present study, I consider four 5-year periods: 1990-1995, 1995-2000, 2000-2005, and 2005-2010.

In the growth literature there is no conventional way of choosing the length of the growth periods. For example, Gregorio (1992) uses periods of six years. Beck et al. (2000) and Choe (2003) use periods of five years. Barro and McCleary (2003) and McCleary and Barro (2006) use periods of ten years.

The findings of the previous chapter suggest that Islam is not monolithic, and that there is a variety of Islamic beliefs that map onto different attitudes towards women and foreigners. In particular, being a religious person, believing in the importance of religion and God in life tend to be associated with intolerance towards strangers, and negative attitudes towards women (Table (1.2) in the previous chapter). In this chapter I consider the same religiosity variables and a

measure of temple attendance to control for religious behaviour across countries. The individual-level data collected by the WVS are aggregated to the country level for each of the four variables measuring religious behaviour. Barro and McCleary (2003) and McCleary and Barro (2006) use attending once a month as a measure of temple attendance. In the present study, I instead consider attending once a week. Muslims believe that attending Friday prayers at the mosque is compulsory. Thus, weekly attendance is a better measure of religious commitment.

The attendance and belief variables are included in the regression along with economic and political controls. Following Barro and McCleary, the economic and political variables are initial GDP per capita–that is the values of per capita income in 1990, 1995, 2000, and 2005; the average ratio of investment to GDP over each period; the average inflation rate over each period, the average ratio of trade to GDP filtered for country size (land and population); a measure of the output of the research and development sector (following Romer (1990)); the value of the index of democracy in the beginning of each period, that is in 1990, 1995, 2000, and 2005. The dependent variable is the growth rate of real GDP per capita over the four periods: 1990-1995, 1995-2000, 2000-2005, and 2005-2010.

The relationship between religion and economic growth raises the classic problem of endogeneity. With religion viewed as an explanatory variable, one might hypothesize that religion by influencing individual attitudes affects economic outcomes (Weber (1905), for example). However, with religion considered as a dependent variable, it is plausible to argue that different levels of wealth map onto different religious behaviour (Iannaccone (1990), for example). To isolate the di-

rection of causation from religion to economic growth, I use instrumental variables. The instruments are a dummy variable for Soviet past; a measure of religious pluralism; the distance in kilometres between the capital city of each country and Mecca, Saudi Arabia; and dummy variables for three geographic locations: Asia, Europe, and Sub-Saharan Africa.

2.4 Results and Discussion

The results of the regression are reported in Table (2.3) below. According to the empirical findings, initial GDP per capita has the expected negative coefficient suggesting that the economies of the sample exhibit convergence conditional on the other variables. The results also suggest a statistically significant positive association between capital accumulation and economic growth. The estimated coefficient on inflation is strongly significant and has a negative sign, suggesting that sound monetary policies stimulate economic growth.

According to the estimated coefficient, trade openness, measured by the ratio of exports plus imports to GDP filtered for the country size (population and land area), does not have a significant influence on economic growth. This result suggests that openness to international trade has a mixed influence on economic growth. There is evidence in the empirical literature that international trade is not always beneficial. According to the Singer-Prebisch hypothesis, the impact of international trade on economic growth depends on what countries specialize in. The hypothesis states that specializing in the exportation of raw materials and primary commodities deteriorates the terms of trade (Singer, 1950). Study-

Table 2.3: Religiosity and Economic Growth

Growth Rate	(1)	(2)	(3)	(4)
Intercept	10.940**	9.640*	11.388**	10.559**
	(3.932)	(4.444)	(4.137)	(3.562)
Initial GDP per capita	-1.006*	-0.503	-0.72	-0.788
	(0.495)	(0.450)	(0.428)	(0.426)
Investment	0.081	0.129*	0.116*	0.114*
	(0.055)	(0.060)	(0.053)	(0.052)
Inflation	-0.028**	-0.028**	-0.032**	-0.032**
	(0.005)	(0.005)	(0.005)	(0.005)
Trade openness	0.0002	-0.001	0.0002	-0.004
	(0.009)	(0.010)	(0.009)	(0.009)
R & D	0.003	-0.005	0.0005	0.002
	(0.005)	(0.006)	(0.004)	(0.004)
Democracy index	0.015	-0.097	0.007	-0.029
	(0.123)	(0.158)	(0.123)	(0.123)
Attendance (once a week)	-0.035*			
	(0.017)			
Belief		Religious person	Religion is important	God is important
		-0.051	-0.060*	-0.052*
		(0.035)	(0.029)	(0.022)
Muslim share	-0.002	-0.007	0.007	0.011
	(0.011)	(0.012)	(0.013)	(0.013)
Arab country	-0.168	-0.734	-0.09	0.040
	(1.121)	(1.267)	(1.125)	(1.113)
Wald $\chi^2(9)$	52.04**	40.33**	51.93**	54.75**
Number of Observations	50	50	50	50
Number of Countries	27	27	27	27

Notes: G2SLS IV regressions. The instrumented variables are the attendance and belief variables. The instruments are a dummy variable for Soviet past; a measure of religious pluralism; the distance in kilometres between the capital city and Mecca, Saudi Arabia; dummy variables for the three geographic locations Asia, Europe, and Sub-Saharan Africa. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

ing the Jamaican case, Gafar (1995) finds that the deterioration of the terms of trade between 1972 and 1986 led to an annual loss of about 1.5 percent of GDP. More recently, exploiting historical data going back to 1650 on the prices of 25 commodities, Harvey et al. (2010) find that eleven commodities exhibit a decline in their prices over the whole sample period or over some parts of it.

The results of the estimation show that the research and development activity is positively associated with economic growth, although the estimated coefficient is statistically insignificant. The coefficient on the democracy index is statistically insignificant. The insignificance of the coefficient suggests that democracy has a mixed influence on economic growth. It is also possible that the insignificance of the coefficient on the democracy index is due to technical issues related to the construction of the index (Munck and Verkuilen, 2002).

Now we turn our attention to the attendance and belief variables. The results of the regression reported in Table (2.3) suggest a statistically significant influence of attendance and beliefs on economic growth. The religion variables I employ are self description as religious, the importance of religion in life, the importance of God in life, and attending religious services once a week. It is worth noting that the religiosity variables used in this chapter differ from the belief variables used by Barro and McCleary (2003) and McCleary and Barro (2006). Barro and McCleary use belief in hell and belief in heaven as measures of religious intensity. These variables are not robust across religions. In some systems of beliefs, the salvation and the damnations processes take forms other than heaven and hell. Hence, not believing in hell and heaven does not mean any less religious commit-

ment.

In Column (1), only the attendance variable (once a week), is included in the regression. In Columns (2) to (4), only variables measuring religiosity and belief are used. It should be noted that I also considered specifications where both the belief and attendance variables are included. However, the results are statistically insignificant. It is likely that the high correlation between the two dimensions of religiosity cause multicollinearity. Results are reported in Table B2 of Appendix B.

According to the results of the estimation reported in Table (2.3), there is evidence that high levels of religious involvement, measured by attendance and beliefs, are associated with low economic performance, measured by the growth rate of per capita GDP. In particular, there is a negative association between attending religious services once a week and economic growth, suggesting that higher rates of temple attendance lead to lower economic performance.

This result is in agreement with the findings of Barro and McCleary (2003) and McCleary and Barro (2006). In both studies, the authors find that temple attendance has a negative influence on economic growth. McCleary and Barro rationalize the negative association between attendance and economic growth by appealing to the way attendance detracts from spending time on economically productive activities. Alternatively, one might argue that attending religious services negatively influences economic growth by deepening and stressing the type of attitudes that are deleterious to economic growth.

With respect to the cognitive dimension of religion, that is belief, the results of the regression reported in Columns (3) and (4) suggest that too much religiosity leads to low economic growth. In particular, countries with high shares of individuals for whom religion and God are important in life tend to have low rates of economic growth. By contrast, the results of the regression reported in Column (2) suggest that self-description as religious has a statistically insignificant influence on economic growth. Finally, according to the results of the estimation the Arab and the Muslim shares of the population are statistically insignificant.

My findings in this chapter are consistent with the findings of McCleary and Barro. Using a sample with little Muslim representation, Barro and McCleary (2003) and McCleary and Barro (2006) find a negative relationship between the Muslim share of the population and economic growth. By contrast, my findings relative to a sample with a larger Muslim representation suggest that the influence of the Muslim share of the population is statistically not different from zero. However, there is a statistically significant negative influence of belief and attendance on economic growth. In other words, the negative coefficient on the Muslim share of the population found by McCleary and Barro is plausibly picking up the negative influence of belief and attendance on growth in countries with substantial Muslim presence found in this chapter.

With respect to the influence of religious belief on growth, my findings are in disagreement with those of Barro and McCleary. While Barro and McCleary (2003) and McCleary and Barro (2006) find that belief in hell has a positive influence on growth, I find that believing in the importance of God and religion

in life has a deleterious effect on growth. Unless we were to assume that belief in hell, as a measure of religious intensity, is somehow picking up something different compared to the belief in the importance of God and religion in life, one could argue that compared to Christian-majority countries, religiosity in countries with substantial Muslim presence produces the sort of attitudes that are inimical to economic growth. In fact, the correlations reported in Table (1.2) above show a strong association between religiosity and intolerance towards immigrants and conservative attitudes towards the role of women in society. Consistent with the findings of the previous chapter, the negative attitudes towards women and intolerance towards strangers are plausible channels through which the negative influence of religion on economic growth works in countries with substantial Muslim presence.

Throughout this chapter the discussion has focused on how religion could plausibly affect economic growth by influencing individual attitudes. Religion might also have an influence on social capital and trust building. The way individuals interact with each other and the type of network of relationships they create (for example, whether these networks are inclusive or exclusive of *the Other*) might have an impact on social relations and plausibly on economic performance. Religion might have an even greater impact if the attitudes that it generates are institutionalized. For example, if discrimination against women and anti-Muslim feelings are built into state institutions such as the judiciary and the educational system, then religion might have a doubly negative impact on economic performance.

The figures reported in Table (3.4) are measures of various attitudes towards women in Saudi Arabia in 2003. The data suggest a strong bias against women in the Saudi society. According to the data about 70 percent of Saudis agree that men should be prioritized when jobs are scarce, and think that being a housewife is as fulfilling as working for a pay. The data also suggest that three in four Saudis think that university is more important for boys than girls.[1] In Saudi Arabia individuals may have negative attitudes towards the role of women in society, but official institutions such as the educational system reinforce these type of attitudes. Hamdan (2005) argues that "[w]omen' issues in Saudi society and the gender inequalities that are obvious in its education system are institutionalized."[2] This dynamic has created a situation whereby any state-led reforms that aim at granting more rights for women are faced with opposition. "Indeed, the opening of official schools for girls [in Saudi Arabia were] met with fervent opposition. Non-religious education of girls was considered useless and even, according to certain conservative religious scholars, dangerous."[3]

Religion still plays a central role in people's lives in several societies–including predominantly Muslim societies. For many, as Marx wrote over a 150 years ago,

[1]Despite the overwhelming conservative majority suggested by the figures reported in Table (2.4), the results of a survey reported by Hamdan (2005) suggest an ongoing struggle in Saudi society between women rights advocates and conservatives. "In his study (1975) entitled Perception of Female Students from the Countries of the Arab Gulf, Al Kotob interviewed 519 female students. He notes that 79 percent of his respondents agreed strongly that women should have the same opportunities as men, 70 percent insisted that Master's and Doctorate level degrees are suitable for women in the Gulf region, and 80 percent indicated that university education should be co-educational. With regards to marriage, 94.8 percent of the participants supported education prior to marriage. In relation to the subjects of study available to women, 94.2 percent agreed that women should not be confined to certain subjects and should be able to study in any field."

[2]Hamdan (2005), p. 45.

[3]Ibid., p. 50.

Table 2.4: Various Attitudes Towards Women in Saudi Arabia in 2003

	Agree	Disagree	N
When Jobs are scarce, men should be prioritized	69.7	8.6	1,480
University is more important for boys†	74.6	25.4	1,425
Men make better politicians than women†	61.9	38.1	1,447
Being a housewife is as fulfilling as working for pay†	68.8	31.2	1,396
Wife must obey†	81.3	5.4	1,494

Notes: Figures are expressed in percentage.
† Agree (disagree) is the sum of the percentages of individuals who strongly agree (strongly disagree) and individuals who agree (disagree).
Data source: WVS database.

religion is "the general theory of this world, its encyclopedic compendium, its logic in popular form, its spiritual point d'honneur, its enthusiasm, its moral sanction, its solemn complement, and its universal basis of consolation and justification."[1] Hume (1757) argues that "[t]he primary religion of mankind arises chiefly from an anxious fear of future events."[2] Similarly, Freud (1927) claims that man in his search for protection against alien forces created God. According to Freud belief in God is a collective neurosis caused by the longing for a father–a protector. Echoing Freud, La Barre (1972) writes that "a god is only a shaman's dream about his father."[3] Religion helps humans to handle uncertainty, and this is perhaps what keeps it in high demand in many societies.

The sample period I use in this study covers four waves. However not all countries are observed in all waves. Depending on the availability of data on the religion variables, the distribution of countries per number of observations is

[1]Marx (1843), p. 131.
[2]Hume (1757), p. 61.
[3]La Barre (1972), p. 19.

as follows: all countries of the sample are observed once–though not in the same wave; 36 countries are observed twice; only four countries are observed three times; and 16 countries are observed four times. In order to check whether results are driven by the countries that are observed more than others, I rerun the regressions reported in Table (2.3) for the sub-sample of countries observed two times and the sub-sample of countries observed four times. Obviously it is not possible to perform this exercise on the sub-sample of countries observed three times, and this is due to the limited number of observations. The results of the regressions are insignificant and they are reported in Tables (B4) and (B5) of Appendix B.

2.5 Concluding Remarks

Exploiting data from the WVS database, this chapter has studied the influence of religion on economic growth for a panel of countries with substantial Muslim presence. The religiosity variables are measures of whether the individual is religious, believe in the importance of God in life, believe in the importance of religion in life, and whether she or he attends formal religious services once a week. The data on these variables are aggregated to the country level. Economic growth is measured by the growth rate of real GDP per capita over four periods of five years each, namely 1990-1995, 1995-2000, 2000-2005, and 2005-2010.

Instrumenting for the belief and attendance variables, I find that higher levels of religiosity lead to lower levels of economic performance. In particular, countries with higher levels of temple attendance are associated with lower rates of economic growth. Moreover, countries with high shares of the population believing in the

importance of God and religion in life tend to have poor economic performance. According to the estimated coefficients, attending religious services once a week is found to have the strongest negative influence on economic growth, followed by the belief in the importance of God in life, and the belief in the importance of religion in life.

With respect to the influence of temple attendance on growth, the findings of this chapter are in agreement with the findings of Barro and McCleary. However, there is a disagreement over the influence of religious belief. In this study I find that higher levels of religiosity lead to lower rates of economic growth. This suggests that religiosity in countries with substantial Muslim presence produces the type of attitudes that stifle economic growth.

My findings in this chapter are consistent with the findings of the previous chapter. In the first chapter, I find that higher levels of religious engagement are associated with conservatism towards women and intolerance towards foreigners. I also find that these types of attitudes are deleterious to FDI. In this chapter, I find that higher levels of religious engagement map onto lower rates of economic growth. Hence, the negative attitudes towards women and intolerance towards foreigners are plausible channels through which the negative influence of religion on growth works.

An interesting question that follows and will be taken up in the following chapter is whether there are other attitudes through which religion influences economic performance. Specifically, how do different patterns of religious behaviour

in predominantly Muslim countries map onto economically relevant attitudes?

Chapter 3

Religiosity and Economic Attitudes

3.1 Introduction

In chapter one of this dissertation the empirical evidence suggests that different levels of openness (both internal and external) map onto different levels of FDI performance. In particular, low degrees of openness lead to poor FDI performance. I also find that higher levels of religiosity are associated with lower degrees of openness. In chapter two the empirical results show that religious belief and attendance have a negative influence on economic growth. Internal openness and external cultural openness that are found to be associated with religiosity are plausible channels through which the negative influence of religion on growth works.

Following up on these findings, the question that this chapter asks is whether there are other economically relevant attitudes influenced by religion that could

explain the negative influence of religion on economic performance. Specifically, I investigate the way in which different patterns of individual religious behaviour in predominantly Muslim countries map onto economically relevant attitudes.

Studying the relationship between cultural values and the stock market, de Jong and Semenov (2002) find that masculinity and uncertainty avoidance are positively associated with stock market development. In masculine cultures, people favour competition and values such as "the importance of showing off, of performing, of achieving something visible, of making money, of 'big is beautiful'."[1] However, in feminine societies there is a tendency to emphasize equality and solidarity. The values that make a society feminine (or masculine) are found to be associated with religion. Studying the influence of religion on economically relevant attitudes, Guiso et al. (2003) find that different patterns of religious behaviour and different belief systems map onto different economically relevant attitudes such as competition and income differences. Muslims, for example, tend to have anti-market attitudes. Also, they tend to be intolerant towards immigrants and other races, and have conservative attitudes towards the role of women in society (Guiso et al., 2003).

However, the findings of Guiso et al. (2003) with respect to Islam are based on a sample with little Muslim representation. The bulk of the sample consists of individuals from Christian background, and only about five percent report Islam as their religion. It is not known whether the findings of Guiso et al. (2003) with respect to Islam hold for samples with larger Muslim representation.

[1]Hofstede (1983), p. 85.

This chapter exploits the WVS database, in particular the last two waves which cover more predominantly Muslim countries. WVS offers data on 17 predominantly Muslim countries, with a total number of observations varying between 27,501 and 50,721, depending on the availability of data. Among the countries covered by WVS are Azerbaijan, Iran, and Iraq–three predominantly Shi'ite countries. This allows for the opportunity to study ways in which religiosity in Sunni-majority and Shi'ite-majority countries influence economically relevant attitudes.

Seventeen dependent variables are selected. These variables, gathered in six groups, are measures of individual opinions and views towards a number of economically relevant issues, namely: attitudes towards the role of women in society; trusting others; respect of state institutions; respect of legal regulations; attitudes about the market; and attitudes towards immigrants and people from different cultural backgrounds. The explanatory variables measuring religiosity considered in this chapter are those found to have a significant influence on economic growth in chapter two. The variables are the belief that God is important in life, the belief that religion is important in life, and attending formal religious services. I also consider a measure of disbelief, namely whether the person is an atheist. The regression analysis is performed on a sample of individuals from predominantly Sunni countries, and replicated for a sample of individuals from Shi'ite-majority countries.

The findings of the empirical analysis suggest that, overall, there are more similarities than differences between the ways religiosity influences attitudes in

predominantly Sunni countries compared to predominantly Shi'ite countries. Religiosity is found in both groups of countries to encourage conservative attitudes towards women. It is also found to be associated with intolerance towards immigrants and individuals from different cultural backgrounds. These findings are consistent with the findings of chapters one and three of this dissertation, where results suggest that religion by producing negative attitudes towards women and strangers leads to poor economic performance measured by FDI and economic growth.

Religiosity is found to be associated with pro-market attitudes in predominantly Sunni countries–the majority of Muslims in the world. Individuals from Sunni-majority countries who believe in the importance of God and religion in life, tend to think that competition is good, and that larger income differences work as incentives. These findings do not agree with Guiso et al. (2003) who find that Muslims are associated with anti-market attitudes. Furthermore, religiosity in both predominantly Sunni and predominantly Shi'ite countries encourages confidence in state institutions and the respect of law. Empirical findings also suggest that religiosity in predominantly Muslim societies increased after the event of September 11. This result agrees with the findings of the literature (Rabasa et al. (2004), for example), and lends support to the hypothesis of Maalouf (1998) who argues that individuals tend to emphasize the dimension of their identity that they feel is most threatened.

The rest of the chapter is organised as follows. The following section reviews the study of Guiso et al. (2003). Section 3.3 presents the variables used in the

empirical analysis. Section 3.4 reports the results of the regression. Section 3.5 concludes the chapter.

3.2 Review of Guiso et al. (2003)

Guiso and his associates use the WVS database in order to examine the influence of religious behaviour on individual attitudes that are believed to affect economic outcomes. The authors consider 26 dependent variables grouped in seven categories. These variables measure individual "attitudes towards (1) trust and cooperation, (2) women, (3) the government, (4) the law, (5) the market, (6) thriftiness, and (7) the fairness of the market."[1]

For example, the second category (i.e. attitudes towards women) groups variables measuring individual views regarding the right of women to education and work. Guiso et al. (2003) argue that the attitudes a society has towards the role of women in society might have an impact on the labour market. Another example is the fifth category which includes variables measuring opinions about the market. Examples of these opinions are whether the individual thinks that larger income inequalities work as an incentive, and whether competition is good or harmful.

In their empirical analysis, Guiso et al. (2003) regress each of the 26 dependent variables on an array of variables measuring religious involvement, along with measures of socio-demographic characteristics. The religion variables are whether the individual was raised religiously, whether she or he does not believe in God

[1]For a discussion of these variables, see Guiso et al. (2003), p. 232. For the full list of the 26 dependent variables, see p. 238-42.

(i.e. atheist), whether the respondent is currently religious (i.e. attend religious services once a year), and whether she or he is actively religious (i.e. attend religious services once a week). The socio-demographic controls are a subjective measure of the state of health, gender (male), age, education, self-perceived social class, and income. Guiso et al. (2003) also control for country-fixed effects. The total number of observations ranges between 52,252 to 95,739 depending on the availability of data on the dependent variable. According to the figures reported by Guiso et al. (2003) 60 percent of the respondents are Christian, 17 percent have no religious affiliation, and only 5 percent report Islam as their religion.

Since the focus is on religiosity in its connection with the economically relevant attitudes, in what follows I report only the findings of Guiso et al. (2003) with respect to religion.

The Overall Influence of Religion

In the first part of their study, Guiso et al. (2003) look at the overall influence of religion on economically relevant attitudes without any distinction between the various religious denominations.

According to the results of the OLS regression, religiosity, measured by raised religiously, currently religious (i.e. attend once a year), and actively religious (i.e. attend once a week), tends to be associated with trust, respect of institutions and the law, and the belief in the fairness of the market. On the other hand, religiosity is associated with intolerance towards immigrants and other races. It also fosters conservative attitudes towards the role of women in society. By contrast, atheists

tend to be associated with the opposite attitudes. They have less confidence in state institutions, have anti-market attitudes, more inclined to break the law, have progressive attitudes towards women, more tolerant towards other races and immigrants, and tend to trust others.

Influence of Dominant Religion

In the second part of their study, Guiso et al. (2003) investigate the influence of religious behaviour on attitudes when the respondent belongs to the country's dominant religion. The authors argue that some aspects of the dominant religion, by force of habit, become part of individual's behaviour without implying religious commitment. Hence, it is possible that being religious and belonging to the country's dominant religion is different from being religious in a minority religion. In order to disentangle the effect of the dominant religion from that of the minority religion, Guiso and his colleagues consider the same measures of religious behaviour (raised religiously, currently religious (i.e. attend once a year), and actively religious (i.e. attend once a week)), and their adjusted versions for whether the individual adheres to the dominant religion of the country.

The results of the regression suggest that individuals brought up religiously in the dominant religion tend to have more confidence in police and the military compared to their peers from other religions. With respect to attitudes towards women, the influence of the dominant religion is unclear. While being raised religiously in the dominant religion tends to foster conservative attitudes, actively religious individuals in the dominant religion are found to have the opposite attitudes. Regardless of whether the individual belongs to the dominant religion or

another religion, religiosity tends to be associated with the respect of legal rules. The findings of Guiso et al. (2003) also show that individuals brought up religiously in the dominant religion tend to be associated with low levels of trust. With respect to attitudes towards the market, the results of the regression suggest that the influence of being religious in the dominant religion is null (Guiso et al., 2003).

The dominance of a religion tends to be associated with intolerance. In this respect, Guiso et al. (2003) find that Catholics tend to be intolerant in Catholic-dominated societies. However, they tend to be tolerant in predominantly Protestant societies. Similarly, Protestants are less tolerant in predominantly Protestant countries than in predominantly Catholic countries. An interesting result is that Jews tend to trust the government more in predominantly Protestant countries, compared to predominantly Catholic countries (Guiso et al., 2003). The authors rationalize this pattern by the anti-Jewish sentiments associated with Catholicism.

Influence of Different Religions

In order to examine how different religions influence individuals' attitudes, Guiso et al. (2003) interact religious behaviour with religious denomination. Seven religious groups are considered, namely Catholicism, Protestantism, Judaism, Islam, Hinduism, Buddhism, and Others. The patterns of religious behaviour are the same three measures of religious behaviour mentioned above, and their cumulative effects. The authors also estimate the total impact of religion for the various religious denominations.

According to the results of the estimation, religious Protestants tend to trust

others. For Hindus, however, being religious has a mixed influence. For Muslims the effect is null. Results also suggest that of the six religious denominations, religiosity in Islam tends to have the strongest impact on intolerance. Moreover, religious Catholics, Protestants, and Muslims tend to have conservative attitudes towards women. By contrast, there is evidence that religiosity across the various denominations tends to be associated with confidence in the government and the legal system. With the exception of Buddhism, where the effect is statistically not different from zero, religiosity is seen to be associated with the respect of legal rules.

Guiso et al. (2003) find that religiosity in Islam, in general, tends to be associated with anti-market attitudes. In particular, Muslims raised religiously do not think that large income differences work as incentive and they are in favour of less competition. Furthermore, actively religious Muslims think that private ownership should be decreased. Catholicism, on the other hand, is seen to foster the opposite attitudes. Regarding the perceived fairness of the market, on average religiosity in Christianity, Islam, and Hinduism is associated with the belief that the poor live in need because they are lazy, not because of injustices in society.

Influence of Islam as a Dominant Religion

When Islam is the dominant religion it tends to foster intolerance towards others. By contrast, Muslims tend to trust the government in both predominantly Muslim and predominantly Protestant countries. Compared to Christian-majority countries, Catholics tend to trust the government less when Islam is the dominant religion. On the other hand, Hindus are found to be more trusting of the

government in Muslim-majority countries. The effect in predominantly Christian countries is null.

Religion is found to be associated with conservative attitudes towards women. An interesting result, however, is the pattern revealed by the data when individuals are asked whether men should be prioritized when jobs are scarce. Catholicism, Protestantism, and Islam tend to foster the attitude that men should be prioritized among their respective followers when they are the dominant religions. Interestingly, Jews tend to oppose such attitude only in Muslim-majority countries. The effect in predominantly Christian countries is statistically not different from zero.

The findings of Guiso et al. (2003) suggest that Christians tend to respect the law and trust the legal system more in predominantly Christian countries. However, Catholics are found to have less trust in the government when Islam is the dominant religion. According to the results of the regression, Muslims consistently trust the legal system regardless of the dominant religion. However, the impact is stronger when Islam is the dominant religion. On the other hand, Muslims are more willing to cheat on taxes in predominantly Muslim countries. However, the effect is null when Christianity is the dominant religion.

Guiso et al. (2003) find that when Islam is the dominant religion, Muslims tend to be associated with anti-market attitudes. In particular, they do not think that larger income differences work as incentives, they tend to think that private ownership should be decreased, and for those brought up religiously, competition is not good. However, Muslims, like Christians and Hindus, tend to think that

the poor are in need because they are lazy, rather than because of injustices in the society. Finally, the results show that Islam in predominantly Muslim countries tends to be associated with the attitude that thriftiness is a value that should be taught to children.

The Second Vatican Council and Attitudes of Catholics

Between 1962 and 1965, the Vatican held a series of meetings known as the Second Vatican Council to address matters related to the Catholic faith. The Council resulted in major changes that affected the way Roman Catholics practice their religion and the way they think of the followers of other faiths. For example, the Vatican permitted the use of the vernacular instead of Latin in masses. Also, in a document issued by the Council the leadership of the Catholic Church talks about the followers of non-Christian faiths with a remarkably positive tone.

In order to test for whether the changes brought about by the Second Vatican Council to the Catholic faith had an influence on Catholics' attitudes, Guiso et al. (2003) generate a dummy variable, coded 1 if the respondent is a Catholic born after 1960, 0 otherwise. This dummy variable is included in the regression, and interacted with three aspects of religiosity: raised Catholic, raised plus currently Catholic, and raised plus currently Catholic plus actively Catholic.

Guiso et al. (2003) find that Catholics born after 1960 are more tolerant towards other races and immigrants. They are also more trusting of others. This result seems at odds with the negative association between Catholicism and trust found in the literature. The authors rationalize the seemingly conflicting findings

by arguing that there could be some "cultural characteristics that survive in countries imbued with Catholic culture, but do not exist any more in Catholic people."[1]

With respect to attitudes towards women, there is evidence that Catholics born after the Council are associated with more progressive views. Furthermore, they tend to respect the law more than their older peers. However, they have anti-market attitudes (e.g. they favour less private property, and think that competition is bad), and tend to think that the poor are in need because of injustices in the society, not because of laziness. Finally, post-Council Catholics are found to be associated with the attitude that thriftiness is a value worth teaching to children (Guiso et al., 2003).

Summary of the Review

The study of Guiso et al. (2003) examines the relationship between religion and economically relevant attitudes. Specifically, it looks at the ways in which different patterns of religious behaviour map onto different attitudes that are believed to influence economic outcomes. Religious behaviour is measured by whether the person is raised religiously, currently religious (i.e. attend services at least once a year) and actively religious (i.e. attend services at least once a week). Economically relevant attitudes are measured by opinions about issues believed to influence economic outcomes. Examples are the level of trust an individual has towards others, the respect of legal rules, and attitudes about the market.

The findings relative to Islam suggest that Muslims tend to be less tolerant

[1] Guiso et al. (2003), pp. 265, 280.

towards others and have conservative attitudes towards women. Islam does not seem to have an influence on trust, however. The results also show that Muslims are less willing to break the law and tend to have confidence in government. However, the effect is much stronger in countries where Islam or Protestantism are the dominant religions. Moreover, Islam is seen to be correlated with anti-market attitudes. "Overall, [findings suggest] that Christian religions are more positively associated with attitudes conducive to economic growth, while religious Muslims are the most anti-market."[1]

However, the study of Guiso et al. (2003) has some limitations. The first remark concerns the choice of the religiosity variables. The authors consider three measures of religious behaviour, namely raised religiously, actively religious, and currently religious. An individual is considered as actively religious if she or he attends religious services once a week. However, currently religious means attending religious services once a year. It is straightforward to notice the overlap between actively religious and currently religious as defined by the authors. A person who attends religious services once a week is actually actively religious and currently religious. Furthermore, it is questionable whether attending religious services once a year implies religiosity. It is possible that attending religious services reflects compliance with certain social norms, rather than religious conviction. Hence, a better measure of being religious is the answer to the WVS question whether the respondent considers herself or himself religious.

One further remark about the composition of the sample is in order. In their

[1]Guiso et al. (2003), p. 228.

paper Guiso et al. (2003) use a sample of individuals from countries that are predominantly Christian. Only three countries, Azerbaijan, Bangladesh, and Turkey, have predominately Muslim populations. Respondents who reported Islam as their religion make less than 6 percent of the sample size. Hence, the question is whether the findings of Guiso et al. (2003) with respect to Islam hold for a larger sample.

3.3 Empirical Analysis

This chapter makes use of data collected by WVS on individuals from 17 predominantly Muslim countries. Seventeen dependent variables, gathered in six categories of economically relevant attitudes, are selected. These categories are measures of views towards the role of women in society; trusting others; confidence in state institutions; respect of legal regulations; attitudes towards the market; and tolerance towards immigrants and people of different race and religion. It is worth noting that the dependent variables are measures of opinions and intention rather than actual behaviour. This, as Guiso et al. (2003) explain, reduces the influence of spurious factors. "Asking somebody his view on cheating on taxes is different from asking him if he has cheated on his taxes. The decision of whether to actually cheat is affected greatly by the probability of being caught. This is a function of a country's law enforcement, not of an individual's attitude. Therefore, looking at attitudes is a better way of identifying the effect of religious beliefs on people's preferences."[1] Table (3.1) provides a summary statistics of the dependent variables.

[1]Guiso et al. (2003), pp. 231-32.

Table 3.1: Summary Statistics of Selected Attitudes

Variable	Observations	Mean	S.D.	Min	Max
I. Attitudes towards women					
1. When jobs are scarce, men should be prioritized	50,721	0.668	0.471	0	1
2. Men make better politicians than women	47,517	3.022	0.952	1	4
3. University is more important for boys	48,265	2.262	1.051	1	4
4. Being a housewife is as fulfilling as working for pay	45,682	2.924	0.935	1	4
II. Trusting others					
5. Most people can be trusted	50,721	0.250	0.433	0	1
III. Attitudes towards state institutions					
6. I have confidence in justice	20,134	2.759	0.914	1	4
7. I have confidence in the police	39,571	2.720	0.991	1	4
8. I have confidence in the government	42,466	2.667	0.997	1	4
IV. Attitudes towards legal rules					
9. Not justified to accept a bribe	43,837	9.415	1.628	1	10
10. Not justified to cheat on taxes	37,203	9.135	1.964	1	10
11. Not justified to claim gov. benefit not entitled to	37,892	8.571	2.481	1	10
V. Attitudes about the market					
12. Competition is good	27,501	7.760	2.502	1	10
13. Private property should be increased	46,362	5.324	3.001	1	10
14. Larger income differences work as incentive	45,554	6.198	3.088	1	10
VI. Tolerance towards others					
15. I do not like neighbours of different race	41,815	0.263	0.440	0	1
16. I do not like to have immigrant neighbours	41,815	0.335	0.472	0	1
17. I do not like neighbours of different religion	35,157	0.310	0.462	0	1

Notes: All variables are coded in a way that a higher value represents a higher degree of agreement with the statement.

The first group of variables is about attitudes towards women. The findings of the first chapter suggest that more progressive attitudes towards the role of women in society lead to better FDI performance. The second category is about trust. Trust is believed to have an influence on economic performance (Guiso et al., 2009; Algan and Cahuc, 2010) and institutions (La Porta et al., 1997). The third and the fourth categories of attitudes include variables measuring confidence in state institutions and respect of legal regulations. The findings of the empirical literature show that corruption, for example, is deleterious to economic growth (Mauro, 1995; Mo, 2001, for example). The fifth category measures attitudes about the market. Arguing in favour of the free market model, Easton and Walker (1997) observe that a freer economic structure stimulates growth. Nevertheless, some authors argue that in some cases a higher level of state intervention is desirable. For example, Amsden (1992) argues that late-industrializing countries, such as South Korea, provide evidence for the positive role of the state in driving economic growth. In this sense, it is possible that pro-market attitudes have the reverse effect on growth for predominantly Muslim countries. Category six includes variables measuring tolerance towards immigrants and individuals from different religious and racial backgrounds. Landes (1998) argues that the intolerant Catholic Inquisition led many of the skilled people to leave. "[The Jews] took with them money, commercial know-how, connections, knowledge, and – even more serious – those immeasurable qualities of curiosity and dissent that are the leaven of thought."[1] Moreover, the findings of the first chapter suggest that countries enjoying higher levels of external cultural openness are more attractive to foreign investors. As shown in Table (3.1), all variables are coded in a way that

[1]Landes (1998), p. 134.

a higher value refers to a higher level of agreement.

The 17 dependent variables are regressed on measures of religious behaviour. The explanatory variables measuring religiosity I use are those found to be statistically significant in chapter two. These variables are the belief in the importance of God in life (1 to 10, with the value 10 being very important), the belief in the importance of religion in life (1 to 4, with 4 being very important), and attending formal religious services once a week (yes = 1, 0 otherwise). I also consider a measure of disbelief, namely whether the respondent is an atheist.

Following Guiso et al. (2003) I control for individual characteristics. The control variables are a subjective measure of the state of health ranging from 1 being very poor to 5 being very good; a dummy variable for gender that takes the value 1 if the respondent is a woman, 0 otherwise; the actual age of the respondent; a measure of educational attainment ranging from 1 to 8 with the lowest level being "inadequately completed elementary education" and the highest level being a university graduate; and a measure of income level (10 steps, with 1 being the lowest step and 10 being the highest step). With the exception of gender, the variables are coded in a way that a higher value refers to a higher state.

Shi'ism and Sunnism are the largest denominations of Islam, with Sunnis representing around 90 percent of world Muslims. Shi'ites are concentrated in four countries, namely Azerbaijan, Bahrain, Iran, and Iraq. Historically Shi'ism emerged as a result of a disagreement over political power, but underpinned by a religious dimension. Upon the death of Mohamed, a group of people, who would later

become known as Shi'a[1] (Shi'ite in English language), favoured Ali, Mohamed's cousin and son in law, for the leadership of Muslims. However, Abu Bakr was chosen for the position. Politically defeated, the supporters of Ali would not give up. They would make use of the Islamic scriptures and interpret them in a way to promote Ali as a man with supernatural, almost divine, qualities. After the death of Imam Ali,[2] the interpretation effort that sought to promote him as a perfect leader did not wither away. It carried on with other Imams. Ali and eleven Imams together are the twelve historical Imams who Shi'ites refer to in religious matters. For Sunnis, while Ali is a respected figure in Islam he does not have any privileged status, let alone supernatural qualities.

Over the centuries as differences between Sunnism and Shi'ism built up, the two denominations of Islam drifted apart to form two different systems of beliefs. Since this chapter examines how different levels of religiosity map onto economically meaningful attitudes in predominantly Muslim societies, it is interesting to see whether theological differences between Sunnism and Shi'ism play any role in shaping people's attitudes.

The WVS database does not provide data on whether the Muslim respondent is Sunni or Shi'ite. However, it offers data on three predominantly Shi'ite countries, namely Azerbaijan, Iran, and Iraq. This gives the opportunity to examine how religious behaviour in Sunni-majority countries map onto economically relevant attitudes compared to Shi'ite-majority countries.

[1] Shi'a is Arabic for followers.

[2] In Sunni Islam, the person who leads the prayers is called an Imam. However, in Shi'ism Imam is a title reserved to Ali and eleven of his male descendants. It is worth noting that Khomeini made an exception and was referred to by his supporters as Imam.

Although the dependent variables are measures of opinions and not actual behaviour, which helps reducing spurious correlations (Guiso et al., 2003), the estimated coefficients should not be interpreted as cause-effect relationships, but rather as correlations. The reason is that, as Guiso et al. (2003) explain, there could be some latent variable that influences both religiosity and the attitudes individuals have.

3.4 Results and Discussion

Table (3.2) reports the results relative to the sample of individuals from predominantly Sunni countries. The table consists of three panels – A, B, and C – each reports the results relative to a set of dependent variables. Each dependent variable, shown in the top row of each panel, is regressed on four variables measuring attendance and the intensity of religious belief, along with other controls. The regression is replicated for a sample of individuals from predominantly Shi'ite countries, and the results of the regression are reported in Panels A through to C of Table (3.3). In order to respect the ordinality of the dependent variables, I follow Daykin and Moffatt (2002) and use the ordered probit regression technique.

For technical reasons related to the presentation of the results, I follow Guiso et al. (2003) and discuss the results in terms of the "influence" of the independent variable on the dependent variable. However, as already mentioned, the relationship between the independent variable and the dependent variable should be understood as a correlation.

According to the results of the estimation, older individuals in both Sunni-majority and Shi'ite-majority countries tend to have conservative attitudes towards the role of women in society. By contrast, education and wealth are seen to foster progressive attitudes. As expected, women are strongly opposed to the limitation of their rights. Surprisingly, women in Shi'ite-majority countries disagree with their peers in Sunni-majority countries in that they hold the belief that being a housewife is as fulfilling as working for pay. The bulk of the Shi'ite sample consists of individuals from Iran and Iraq, and it is possible that the apparent contentment with the role of a housewife in Shi'ite-majority countries is rather an expression of the state of uncertainty created by the political and economic upheavals these countries know. Compared to men, women are found to have more confidence in state institutions, and they are more willing to respect legal rules. Overall, the influence of age, education, and gender on attitudes towards women in predominantly Muslim countries is similar to that found by Guiso et al. (2003).

In agreement with the findings of Guiso et al. (2003), the empirical results suggest that older individuals in both groups of countries have, ceteris paribus, a higher propensity to trust others compared to their younger peers. On the other hand, individuals with higher educational attainment tend to distrust others, have less confidence in state institutions, and they are more willing to break legal regulations. In the study of Guiso et al. (2003), education is also found to discourage confidence in state institutions. Interestingly, while income is found to foster confidence in state institutions in predominantly Shi'ite countries, it tends to have the opposite impact in predominantly Sunni countries. Regarding the respect of

Table 3.2: Religion and Attitudes in Sunni Countries
Panel A—Attitudes Towards Women and Trusting Others

	Yes, when Jobs are scarce, men should be prioritized	Yes, men make better politicians than women	Yes, university is more important for boys	Yes, being a housewife is fulfilling	Yes, most people can be trusted
State of health	-0.030**	-0.01	-0.021**	0.021*	0.129**
	(0.010)	(0.008)	(0.008)	(0.008)	(0.011)
Gender (woman)	-0.512**	-0.401**	-0.399**	-0.107**	-0.006
	(0.016)	(0.013)	(0.013)	(0.013)	(0.017)
Age	0.001	0.002**	0.001	0.004**	0.006**
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)
Education	-0.075**	-0.051**	-0.088**	-0.042**	-0.027**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
Income level	-0.027**	-0.025**	-0.030**	-0.007*	0.004
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
Atheist	0.102	0.023	-0.024	-0.105*	0.036
	(0.062)	(0.054)	(0.054)	(0.052)	(0.074)
God is important	0.035**	0.030**	0.008	-0.008	-0.010
	(0.005)	(0.004)	(0.005)	(0.004)	(0.006)
Religion is important	0.185**	0.127**	0.104**	0.113**	-0.060**
	(0.015)	(0.013)	(0.013)	(0.013)	(0.017)
Temple attendance	0.014	-0.040*	0.007	-0.041*	-0.024
	(0.021)	(0.017)	(0.017)	(0.017)	(0.021)
Pseudo-R^2	0.126	0.079	0.055	0.085	0.084
Number of observations	32,751	30,654	31,083	31,648	32,751

Notes: Ordered probit regressions. All regressions include dummies for countries and the survey year. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Table 4.2: Religion and Attitudes in Sunni Countries
Panel B—Confidence in Institutions and Respect of Legal Rules

	I have confidence in justice	I have confidence in the police	I have confidence in government	Accepting a bribe is not justified	Cheating on taxes is not justified	Claiming government benefits not entitled to is not justified
State of health	0.099**	0.065**	0.060**	0.043**	0.042**	0.050**
	(0.012)	(0.008)	(0.009)	(0.012)	(0.011)	(0.010)
Gender (woman)	0.123**	0.090**	0.118**	0.089**	0.132**	0.064**
	(0.020)	(0.013)	(0.014)	(0.019)	(0.018)	(0.016)
Age	0.003**	0.004**	0.003**	0.006**	0.007**	0.006**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education	-0.051**	-0.041**	-0.048**	0.022**	0.012**	0.013**
	(0.005)	(0.003)	(0.003)	(0.005)	(0.004)	(0.004)
Income level	-0.004	-0.023**	-0.026**	-0.013**	-0.014**	-0.014**
	(0.005)	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)
Atheist	-0.052	-0.178**	-0.091	-0.036	0.008	0.072
	(0.097)	(0.052)	(0.053)	(0.067)	(0.061)	(0.056)
God is important	0.021**	0.030**	0.030**	0.053**	0.063**	0.045**
	(0.006)	(0.004)	(0.004)	(0.006)	(0.005)	(0.005)
Religion is important	0.150**	0.169**	0.136**	0.051**	0.038*	0.052**
	(0.018)	(0.013)	(0.013)	(0.017)	(0.017)	(0.015)
Temple attendance	-0.014	0.060**	-0.018	-0.007	0.016	-0.012
	(0.028)	(0.018)	(0.018)	(0.026)	(0.024)	(0.020)
Pseudo-R^2	0.036	0.078	0.057	0.115	0.086	0.069
Number of observations	12,695	27,791	26,219	27,299	25,850	26,849

Notes: Ordered probit regressions. All regressions include dummies for countries and the survey year. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Table 4.2: Religion and Attitudes in Sunni Countries
Panel C—Attitudes Towards the Market and Tolerance Towards Others

	I think competition is good	Yes, larger income differences work as incentive	I think private property should be increased	I do not like neighbours of diff. race	I do not like immigrant neighbours	I do not like neighbours of diff. religion
State of health	0.019	0.036**	0.057**	0.009	-0.020*	0.004
	(0.010)	(0.008)	(0.008)	(0.011)	(0.010)	(0.012)
Gender (woman)	-0.085**	-0.006	-0.081**	0.020	-0.01	0.021
	(0.016)	(0.012)	(0.012)	(0.017)	(0.016)	(0.020)
Age	0.002**	0.000	0.002**	0.001	-0.001*	-0.003**
	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Education	0.048**	0.033**	0.044**	-0.051**	-0.040**	-0.046**
	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)
Income level	-0.009*	0.028**	0.023**	-0.030**	-0.027**	-0.026**
	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)
Atheist	-0.026	-0.147**	-0.173**	-0.088	0.021	0.026
	(0.076)	(0.051)	(0.050)	(0.070)	(0.068)	(0.073)
God is important	0.044**	0.041**	-0.013**	0.026**	0.020**	0.030**
	(0.005)	(0.004)	(0.004)	(0.006)	(0.006)	(0.007)
Religion is important	0.004	0.024*	0.029*	0.132**	0.068**	0.154**
	(0.014)	(0.012)	(0.012)	(0.018)	(0.017)	(0.021)
Temple attendance	0.033	0.015	0.055**	-0.052*	-0.047*	-0.057*
	(0.022)	(0.016)	(0.016)	(0.022)	(0.021)	(0.026)
Pseudo-R^2	0.025	0.048	0.023	0.098	0.089	0.092
Number of observations	19,615	31,605	30,355	28,924	28,926	21,132

Notes: Ordered probit regressions. All regressions include dummies for countries and the survey year. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

law, income in predominantly Muslim countries (both Sunni and Shi'ite) tends to have the same impact as in predominantly Christian countries: richer individuals are more willing to break the law.

With respect to the market, the results of the regression indicate that women in predominantly Muslim countries, like their peers in predominantly Christian countries (Guiso et al., 2003), tend to have anti-market attitudes. In particular they do not think that competition is good, and think that private property should be decreased. In agreement with the findings of Guiso et al. (2003), education is found to encourage pro-market attitudes.

Regarding attitudes towards immigrants and individuals from different religious and ethnic backgrounds, the results of the regression suggest that age, education, and wealth tend to be associated with tolerance towards foreigners in Sunni-majority countries. Compared to men, women in predominantly Shi'ite countries are more tolerant towards immigrants and individuals of different religions.

Now we turn our attention to the influence of religion. The empirical findings reported in Tables (3.2) and (3.3) suggest that religiosity in predominantly Muslim countries, measured by the belief in the importance of God and religion in life, and temple attendance, has an influence on economically relevant attitudes.

According to the results of the regression, individuals who believe in the importance of religion in life in both predominantly Sunni and predominantly Shi'ite

Table 3.3: Religion and Attitudes in Shi'ite Countries
Panel A—Attitudes Towards Women and Trusting Others

	Yes, when Jobs are scarce, men should be prioritized	Yes, men make better politicians than women	Yes, university is more important for boys	Yes, being a housewife is fulfilling	Yes, most people can be trusted
State of health	0.028	-0.011	-0.02	0.054**	0.115**
	(0.016)	(0.014)	(0.013)	(0.016)	(0.017)
Gender (woman)	-0.360**	-0.280**	-0.308**	0.052*	0.000
	(0.027)	(0.023)	(0.021)	(0.026)	(0.027)
Age	0.001	0.002*	0.000	0.003**	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education	-0.036**	-0.029**	-0.074**	-0.011	-0.029**
	(0.006)	(0.005)	(0.005)	(0.006)	(0.006)
Income level	-0.015*	-0.038**	-0.020**	-0.014	-0.003
	(0.007)	(0.006)	(0.006)	(0.008)	(0.008)
Atheist	-0.408**	0.001	-0.183	-0.05	-0.056
	(0.130)	(0.122)	(0.111)	(0.130)	(0.130)
God is important	0.017	0.006	-0.012	0.013	-0.022*
	(0.010)	(0.008)	(0.008)	(0.010)	(0.011)
Religion is important	0.159**	0.127**	0.106**	0.055*	0.022
	(0.025)	(0.022)	(0.021)	(0.027)	(0.028)
Temple attendance	0.058	0.045	0.01	-0.029	-0.013
	(0.042)	(0.035)	(0.032)	(0.040)	(0.040)
Pseudo-R^2	0.044	0.082	0.019	0.020	0.101
Number of observations	11,211	10,759	10,882	7,775	11,211

Notes: Ordered probit regressions. All regressions include dummies for countries and the survey year. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Table 4.3: Religion and Attitudes in Shi'ite Countries
Panel B—Confidence in Institutions and Respect of Legal Rules

	I have confidence in justice	I have confidence in the police	I have confidence in government	Accepting a bribe is not justified	Cheating on taxes is not justified	Claiming government benefits not entitled to is not justified
State of health	0.043*	0.111**	0.082**	0.042*	0.107**	0.107**
	(0.022)	(0.018)	(0.014)	(0.018)	(0.021)	(0.019)
Gender (woman)	-0.033	0.008	0.094**	-0.033	0.077*	0.090**
	(0.035)	(0.029)	(0.022)	(0.029)	(0.033)	(0.030)
Age	-0.003*	-0.004**	0.001	0.006**	0.007**	0.007**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education	-0.073**	-0.074**	-0.053**	0.026**	0.011	-0.003
	(0.008)	(0.007)	(0.005)	(0.007)	(0.008)	(0.007)
Income level	0.042**	0.048**	0.027**	-0.036**	-0.017	-0.026**
	(0.010)	(0.008)	(0.006)	(0.008)	(0.009)	(0.008)
Atheist	0.092	-0.188	0.237*	-0.333*	-0.560**	-0.327
	(0.299)	(0.182)	(0.119)	(0.147)	(0.185)	(0.183)
God is important	0.012	0.033**	-0.003	0.083**	0.009	0.004
	(0.010)	(0.009)	(0.008)	(0.009)	(0.010)	(0.009)
Religion is important	0.241**	0.189**	0.206**	0.153**	0.171**	0.046
	(0.028)	(0.023)	(0.022)	(0.025)	(0.025)	(0.024)
Temple attendance	0.088	0.155**	0.088**	-0.043	-0.057	-0.04
	(0.059)	(0.046)	(0.033)	(0.046)	(0.055)	(0.047)
Pseudo-R^2	0.023	0.033	0.053	0.089	0.059	0.022
Number of observations	4,125	7,949	10,103	6,306	6,310	8,908

Notes: Ordered probit regressions. All regressions include dummies for countries and the survey year. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Table 4.3: Religion and Attitudes in Shi'ite Countries
Panel C—Attitudes Towards the Market and Tolerance Towards Others

	I think competition is good	Yes, larger income differences work as incentive	I think private property should be increased	I do not like neighbours of diff. race	I do not like immigrant neighbours	I do not like neighbours of diff. religion
State of health	0.043*	0.002	0.045**	0.022	0.033	0.033
	(0.022)	(0.015)	(0.013)	(0.023)	(0.023)	(0.018)
Gender (woman)	-0.081*	0.027	-0.126**	0.045	0.095**	0.071*
	(0.034)	(0.024)	(0.021)	(0.036)	(0.036)	(0.029)
Age	-0.001	0.002*	0.001	0.001	0.004*	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education	0.032**	0.017**	0.008	-0.031**	-0.006	-0.045**
	(0.008)	(0.005)	(0.005)	(0.008)	(0.009)	(0.006)
Income level	-0.019*	0.034**	0.027**	-0.002	-0.017	0.009
	(0.009)	(0.007)	(0.006)	(0.010)	(0.010)	(0.008)
Atheist	0.016	-0.153	-0.383**	-0.094	-0.044	-0.273
	(0.266)	(0.173)	(0.113)	(0.238)	(0.256)	(0.177)
God is important	0.026**	-0.027**	-0.055**	-0.002	0.01	-0.011
	(0.010)	(0.008)	(0.008)	(0.012)	(0.011)	(0.013)
Religion is important	-0.059*	0.057**	-0.153**	0.094**	-0.025	0.035
	(0.027)	(0.021)	(0.021)	(0.031)	(0.029)	(0.032)
Temple attendance	-0.021	-0.041	0.022	-0.119*	0.065	0.028
	(0.058)	(0.037)	(0.032)	(0.056)	(0.058)	(0.040)
Pseudo-R^2	0.005	0.014	0.018	0.038	0.186	0.024
Number of observations	4,125	7,949	10,103	6,306	6,310	8,908

Notes: Ordered probit regressions. All regressions include dummies for countries and the survey year. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

countries tend to be the most conservative. For example, they think that university is more important for boys, and that being a housewife is as fulfilling as working for pay. Interestingly, in predominantly Sunni countries, regular temple goers tend to have progressive attitudes towards the role of women in society: they disagree with the statement that men make better politicians than women, and do not think that being a housewife is as fulfilling as working for pay.

In Sunni-majority countries the belief in the importance of religion in life is found to discourage trust. However, in predominantly Shi'ite countries the negative influence on trust comes from the belief in the importance of God in life. Regarding attitudes towards institutions and legal rules, the results of the regression suggest that religiosity tends to encourage confidence in state institutions and the respect of law. By contrast, there are indications that atheists in predominantly Shi'ite countries are more willing to break the law.

Panel C in Tables (3.2) and (3.3) reports the results relative to the attitudes towards the market and tolerance towards others. In Sunni-majority countries belief and attendance, in general, are found to foster pro-market attitudes. Atheism, on the other hand is associated with anti-market attitudes. In predominantly Shi'ite countries, however, religiosity has a mixed influence on attitudes towards the market. These findings are in disagreement with Guiso et al. (2003) who find that Muslims tend to have anti-market attitudes.

With respect to attitudes towards others, the influence of religiosity in predominantly Sunni countries is much stronger than in predominantly Shi'ite countries.

Individuals from Sunni-majority countries who believe that God and religion are important in life tend to be intolerant towards immigrants and people from different religious and ethnic backgrounds. Regular temple attendance, by contrast, tends to foster the opposite attitudes. Except for attending religious services which is found to encourage tolerance towards others, my findings with respect to the influence of religiosity on tolerance are in agreement with those of Guiso et al. (2003).

In summary, in both predominantly Sunni and predominantly Shi'ite countries conservative attitudes towards women tend to be associated with individuals who believe in the importance of God and religion in life. Religious belief and attendance increase confidence in state institutions. Religious beliefs, but not attendance (insignificant), are found to encourage the respect of legal rules. With respect to the market, religiosity is associated with pro-market attitudes in Sunni-majority countries. In Shi'ite-majority countries, believing in the importance of God and religion in life tends to encourage anti-market attitudes. In Sunni-majority countries, while religious beliefs are associated with intolerance towards immigrants and people of different race and religion, temple attendance encourages the opposite attitude. It is possible that the positive association between attending services and tolerance towards strangers is due to the role played by houses of worship as social clubs. Congregations offer an opportunity for individuals to meet and to know each other. This in turn eases communication and can help removing prejudices towards strangers. It is equally plausible to argue that the acceptance of strangers is due to the positive influence of the clergy. Table (3.4) provides a summary of the findings with respect to the influence of belief and attendance on individual attitudes in predominantly Sunni and pre-

Table 3.4: Religion and Economically Relevant Attitudes in Sunni and Shi'ite Countries

	God important		Religion important		Temple attendance	
	Sunni	Shi'ite	Sunni	Shi'ite	Sunni	Shi'ite
I. Attitudes towards women						
1. When jobs are scarce, men should be prioritized	0.035**	0.017	0.185**	0.159**	0.014	0.058
2. Men make better politicians than women	0.030**	0.006	0.127**	0.127**	-0.040*	0.045
3. University is more important for boys	0.008	-0.012	0.104**	0.106**	0.007	0.010
4. Being a housewife is as fulfilling as working for pay	-0.008	0.013	0.113**	0.055*	-0.041*	-0.029
II. Trusting others						
5. Most people can be trusted	-0.010	-0.022*	-0.060**	0.022	-0.024	-0.013
III. Attitudes towards state institutions						
6. I have confidence in justice	0.021**	0.012	0.150**	0.241**	-0.014	0.088
7. I have confidence in the police	0.030**	0.033**	0.169**	0.189**	0.060**	0.155**
8. I have confidence in the government	0.030**	-0.003	0.136**	0.206**	-0.018	0.088**
IV. Attitudes towards legal rules						
9. Not justified to accept a bribe	0.053**	0.083**	0.051**	0.153**	-0.007	-0.043
10. Not justified to cheat on taxes	0.063**	0.009	0.038*	0.171**	0.016	-0.057
11. Not justified to claim gov. benefit not entitled to	0.045**	0.004	0.052**	0.046	-0.012	-0.04
V. Attitudes about the market						
12. Competition is good	0.044**	0.026**	0.004	-0.059*	0.033	-0.021
13. Larger income differences work as incentives	0.041**	-0.027**	0.024*	0.057**	0.015	-0.041
14. Private property should be increased	-0.013**	-0.055**	0.029*	-0.153**	0.055**	0.022
VI. Tolerance towards others						
15. I do not like neighbours of different race	0.026**	-0.002	0.132**	0.094**	-0.052*	-0.119*
16. I do not like having immigrant neighbours	0.020**	0.010	0.068**	-0.025	-0.047*	0.065
17. I do not like neighbours of different religion	0.030**	-0.011	0.154**	0.035	-0.057*	0.028

Notes: Sunni and Shi'ite refers, respectively, to the sample of individuals from predominantly Sunni countries and the sample of individuals from predominantly Shi'ite countries. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

dominantly Shi'ite countries.

The findings of this chapter are consistent with those of the previous chapters. In chapter one, I find that higher levels of religious commitment map onto lower degrees of openness, both internal and external. I also find that lower degrees of internal openness and external cultural openness are associated with poor FDI performance. In chapter two, the empirical findings suggest that higher levels of religious intensity, measured by the belief in the importance of God and religion in life, lead to lower rates of economic growth. The empirical results of this chapter suggest that the negative attitudes towards the role of women in society and intolerance towards strangers are plausible channels through which the negative influence of religion on economic growth works.

However, religion in predominantly Muslim countries (i.e. Sunni-majority countries) is found to foster the type of attitudes that are believed to be conducive to economic growth. In particular, religiosity is associated with confidence in state institutions and the respect of law. Religion is also found to be associated with pro-market attitudes.

The findings of this chapter suggest that religion in predominantly Muslim societies produces both type of attitudes: plausibly pro-growth attitudes and anti-growth attitudes. The empirical findings of chapter two show that religion has a deleterious effect on economic growth. This suggests that the anti-growth attitudes outweigh the pro-growth attitudes. An interesting question, then, is whether the conservative attitudes towards women and intolerance towards foreigners ac-

count for the entirety of the negative effect of religion on economic growth.

The "excessive enthusiasm" produced by religion about the market is another plausible channel through which the negative influence of religion on growth works. It is possible that a higher degree of state intervention is desirable in predominantly Muslim countries. The experience of the late-industrializing countries such as South Korea and Singapore lends support to this argument. Studying the role of the state in South Korea's industrialization, Amsden (1992) argues that "[South] Korea is evidence for the proposition that if and when late industrialization arrives, the driving force behind it is a strong interventionist state."[1] According to the data reported by the author, the growth rate of GNP of South Korea averaged 9.1 percent over a period of 17 years, starting in 1963–the year the state adopted a planning strategy (Amsden, 1992). Similarly, Chew and Lee (1991) document the heavy involvement of the state in the industrialization of the economy. The authors observe that "[the] strong government backing, efforts by the [Economic Development Board] to attract new industries and encourage expansion of established ones bore fruits."[2] According to Singaporean statisticians, real GDP per capita has increased by about three folds over a period of 17 years. It increased from $1,400 in 1960 to $4,413 in 1977. In 2012, GDP per capita in Singapore stood at $33,530. In other late-industrializing countries such as Japan and Taiwan the state also played a central role in stimulating economic development (Amsden, 1992).

[1] Amsden (1992), p. 55.
[2] Chew and Lee (1991), p. 192.

3.4.1 Attitudes in Islam and Christianity

Is the influence of religiosity in Muslim-majority countries different from its influence in predominantly Christian countries? Before proceeding, I should note that in the following discussion I contrast the findings of Guiso et al. (2003) to my own findings relative to the Sunni sample. Sunnis represent the majority of the world's Muslims (about 90 percent). Hence, in what follows Sunnis are referred to as Muslims.

According to the findings of Guiso et al. (2003), in predominantly Christian countries religiosity is strongly associated with negative views towards the role of women in society. My findings, on the other hand, partly agree with those of Guiso and his colleagues. In predominantly Muslim countries, while believing in the importance of God and religion in life fosters conservatism towards women, attending religious services is found to be associated with the opposite attitudes. Religiosity (i.e. belief and attendance) in predominantly Christian countries encourages the formation of trust (Guiso et al., 2003), whereas it tends to encourage distrust in predominantly Muslim countries. With respect to attitudes towards immigrants and individuals from different backgrounds, my findings partly agree with those of Guiso et al. (2003). Like in predominantly Christian countries, religious belief in Muslim-majority countries is found to foster intolerance towards strangers. On the other hand, while temple attendance tends to be associated with intolerance towards strangers in predominantly Christian countries, it is seen to encourage the opposite attitude in Muslim-majority countries.

Guiso et al. (2003) find that religiosity in predominantly Christian countries

tends to encourage confidence in state institutions and the respect of law. In agreement with these results, I find that religiosity in predominantly Muslim countries has the same impact. With respect to the attitudes towards the market, atheists in Muslim-majority countries, like their peers in Christian-majority countries, tend to have anti-market attitudes. By contrast, individuals who believe that God and religion are important in life tend to be in favour of more competition, and think that larger income differences work as incentives. These results do not lend support to the argument of Guiso et al. (2003) who conclude that Muslims tend to have anti-market attitudes.

3.4.2 September 11 and Religiosity

Is religiosity stable over time? Barro and McCleary (2003) and McCleary and Barro (2006) assume that religious behaviour is persistent over time and compile their data on religious belief and attendance on the basis of that assumption. The findings of the empirical literature, however, suggest that religious behaviour is subject to change, depending on political and social circumstances. Studying the religious behaviour of Iranians before and after 1979, Kazemipur and Rezaei (2003) find that in pre-1979 Iran, the opposition to the secularization campaign took the form of manifesting more religiosity. Later, however, the Iranians opposed the Islamization of the state and the society (i.e. de-secularization) by expressing less religiosity.

The attacks of September 11 is a major event that had serious repercussions for Muslims. Ever since the attacks, Islamophobia has increased (Sheridan, 2006) and Islam has been associated with terrorism and even fascism. Maalouf (1998)

argues that people tend to emphasize the dimension of their identity that they feel is most threatened. According to this argument, one would expect Muslims to be more religious after 2001.

The WVS dataset provides the opportunity to test for whether religiosity in predominantly Muslim countries has increased after September 11. To test for this hypothesis, I consider a sample of individuals from predominantly Muslim countries who report Islam as their religion. Each country is observed once in 2000-2001, then once again in 2006-2008. The list of countries is reported in Appendix C. To control for the influence of September 11 on religious behaviour, a dummy variable is generated. This variable takes the value 1 if the year is 2006-2008, 0 if the year is 2000-2001. Five measures of religious behaviour are regressed on the dummy September 11 and an array of variables controlling for individual characteristics.

According to the results of the regression reported in Table (3.5), Muslims are more religious after September 11. In particular, in 2006-2008 there are more people who think that God and religion are important in life than in 2000-2001. Moreover, there are more people attending religious services more than once a week in 2006-2008 compared to 2000-2001. These results do not lend support to the assumption of McCleary and Barro that religious behaviour is persistent over time.

Economically, the increase in religiosity after September 11 might have negative consequences. In the previous chapters the empirical findings show that higher

levels of religiosity are associated with lower degrees of openness (internal and external), and that lower degrees of openness lead to lower levels of FDI. Results also show that higher levels of religiosity map onto lower rates of economic growth, suggesting a net negative influence of religion on economically relevant attitudes. Hence, the increase in religiosity caused by September 11, ceteris paribus, could plausibly mean that countries with substantial Muslim presence would become even less attractive to FDI and their growth performance would worsen.

Table 3.5: September 11 and Selected Measures of Religious Behaviour

	Atheist	Religion is important	God is important	Once a week	More than once a week
State of health	-0.074	0.013	0.065**	0.014	0.029*
	(0.070)	(0.017)	(0.016)	(0.015)	(0.015)
Gender (woman)	-0.168	0.127**	0.106**	-0.512**	-0.747**
	(0.117)	(0.028)	(0.026)	(0.024)	(0.025)
Age	-0.010*	0.004**	0.004**	-0.001	0.012**
	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)
Education	-0.004	-0.057**	-0.035**	0.000	-0.011*
	(0.029)	(0.007)	(0.006)	(0.005)	(0.006)
Income level	0.001	-0.027**	-0.036**	-0.003	-0.007
	(0.033)	(0.008)	(0.007)	(0.006)	(0.006)
September 11	-3.561	0.877**	0.974**	0.030	0.284**
	(223.594)	(0.049)	(0.052)	(0.038)	(0.039)
Pseudo-R^2	0.160	0.088	0.055	0.074	0.122
Number of observations	16,929	16,889	16,879	16,929	16,929

Notes: Ordered probit regressions. All regressions include dummies for countries and the survey year. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

3.5 Concluding Remarks

This chapter has studied how different patterns of religious behaviour in predominantly Muslim countries map onto economically relevant attitudes. Seventeen variables measuring individual opinions and views on economic matters are regressed on four measures of religious behaviour for a sample of individuals from Sunni-majority countries. The exercise is replicated for a sample of individuals from predominantly Shi'ite countries.

The empirical findings tentatively suggest that there are more similarities than differences between the way religiosity influences attitudes in predominantly Sunni countries and predominantly Shi'ite countries. Religious belief in predominantly Muslim countries is found to encourage negative attitudes towards the role of women in society. Religiosity tends to encourage distrust, and intolerance towards immigrants and individuals from different religious and racial backgrounds. On the other hand, religiosity is seen to foster confidence in state institutions and the respect of law. It is also found to encourage pro-market attitudes.

The positive association between religion and conservative attitudes towards women and intolerance towards immigrants and strangers found in this chapter is consistent with my findings in the previous chapters. In chapter one, the empirical results suggest that conservatism towards the role of women in society and less openness to outsiders map onto poor FDI performance. The negative attitudes towards women and intolerance towards strangers could also explain the negative influence of religion on economic growth found in the second chapter of this dissertation.

Nonetheless, religiosity is associated with the type of attitudes that are believed to be conducive to growth. The results of the regression suggest that religiosity tends to foster confidence in state institutions and the respect of law. Moreover, religiosity in predominantly Sunni countries is associated with pro-market attitudes. My findings with respect to the attitudes towards the market are in disagreement with Guiso et al. (2003) who find that Muslims are associated with anti-competition and anti-market attitudes.

Although it is hard to conceive how the positive attitudes towards institutions and legal regulations negatively affect economic growth, it is possible that the pro-market attitudes have a negative influence on growth. All predominantly Muslim countries are not industrialized and they are classified as developing by international organization (e.g. United Nations). Thus, a higher degree of state intervention is perhaps desirable. The experience of late-industrializing countries, such as South Korea (Amsden, 1992) and Singapore (Chew and Lee, 1991), provides support to the state-intervention argument.

Finally, there is evidence that after the event of September 11 Muslims are more religious. If more religiosity would map onto more conservatism towards women and more intolerance towards strangers, then, ceteris paribus, one would expect predominantly Muslim countries to be even less attractive to FDI. Moreover, since countries with high levels of religiosity are associated with low rates of economic growth, then September 11 by increasing religious intensity would lead to even worse economic performance.

Conclusion

This dissertation has studied the influence of religiosity on macroeconomic performance in countries with substantial Muslim presence. In chapter one I studied the influence of religiously motivated attitudes on FDI. In chapter two I examined the influence of religiosity, gauged by belief and attendance, on economic growth. Chapter three looks at how different patterns of religious behaviour map onto economically relevant attitudes.

Using instrumental variable techniques, in chapter one I show that countries with higher degrees of openness towards foreigners and progressive views towards women tend to be more attractive to foreign direct investors. In chapter two, the empirical findings suggest that higher levels of religious intensity and attendance are associated with lower rates of economic growth. In chapter three of the dissertation, empirical findings tentatively suggest that in predominantly Muslim countries religiosity is associated with conservative attitudes towards women and intolerance towards strangers. By contrast, religiosity is seen to encourage confidence in state institutions, and the respect of legal regulations. Also, I find that religiosity in Muslim-majority countries tends to foster pro-market attitudes. This result is in disagreement with Guiso et al. (2003) who conclude that Muslims have

anti-market attitudes. Finally, there is evidence that Muslims are more religious after September 11. This result shows that religious expression is not stable over time and that political and social events could have an influence on religious behaviour.

The findings of chapter three are consistent with those of chapters two and three. Conservatism towards women and intolerance towards foreigners are found to be positively associated with religiosity. In chapter one I show that these attitudes lead to lower FDI performance. The negative attitudes towards women and people from different cultural backgrounds are also plausible channels through which the negative influence of religion on economic growth works.

Another possible channel through which the deleterious effect of religion on growth works is the "excessive enthusiasm" about the market. The experience of the late-industrializing countries such as South Korea and Singapore suggests that a higher degree of state intervention is desirable. Studying South Korea as a case of a late-industrializing country, Amsden (1992) argues that "when late industrialization arrives, the driving force behind it is a strong interventionist state."[1]

There are indications that ever since September 11, there is a feeling in predominantly Muslim countries that Islam is targeted. Muslims have been associated with terrorism and even fascism. Retaliating to the alleged attack, Muslims are reportedly more religious. In agreement with the findings of the literature, I find that Muslims are more religious after September 11.

[1]Amsden (1992), p. 55.

Given the negative influence of religiosity on economic performance suggested by the findings of chapters two and three, the increase in religiosity caused by September 11, ceteris paribus, could plausibly mean that countries with substantial Muslim presence would become even less attractive to foreign investors, and their performance in terms of economic growth would worsen.

To sum up, this dissertation has found that religion in countries with substantial Muslim presence negatively influences FDI performance by encouraging negative attitudes towards the role of women in society, and intolerance towards strangers. These attitudes, along with the "excessive enthusiasm" about the market are plausible channels through which the negative influence of religion on growth works. The increase of religiosity after September 11, ceteris paribus, plausibly suggests that the economic performance, gauged by FDI and economic growth, of countries with substantial Muslim presence would even worsen.

There are a number of interesting directions for future research. The findings of this dissertation suggest that religious engagement in predominantly Muslim countries encourages negative attitudes towards the role of women in society. Hence, an interesting question is whether this is specific to Islam. In other words, does Islam intrinsically promote negative attitudes towards women? Another question that follows is whether Islam differs in its views towards the role of women in society from other religions such as Judaism and Catholicism where the sense of orthodoxy is relatively strong.

In this dissertation I examined the influence of religion in countries with substantial Muslim presence on FDI and economic growth. It is interesting to extend the investigation to other domains of economic activity. It is also interesting to consider the influence of religion on bilateral economic activities such as bilateral trade. Another interesting direction for future research is motivated by the political changes taking place in a number of Arab countries. The wave of protests that started in Tunisia towards the end of the year 2010 and spread out to other Arab countries, brought conservative Islamist governments to power. The ultimate goal of political Islam is the establishment of a society governed by the teachings of Islam. One economic sector that might be affected is tourism. The question that arises, then, is what would be the effect of the rise of political Islam on tourism.

My findings with respect to the relationship between free market and economic development suggest that more research into the nature of the relationship between the two is required. According to the mainstream view liberalized institutions along the lines of the Anglo-American model are the good institutions and they are the root cause of good economic performance (Chang, 2011). In his paper Chang (2011) challenges this view on theoretical and empirical grounds. For example, he documents that rich countries performed better when institutions were less liberalized. During the period from 1945 to the late 1970s "[the rich capitalist countries] grew three to four times faster than during the period of classical liberalism (1820-1950) and twice faster than during the subsequent neo-liberal period (1980–2009)."[1]

[1]Chang (2011), p. 484.

Appendices

Appendix A (Chapter 1)

The sample used in chapter two consists of 37 countries. Nineteen Arab countries, 10 Asian countries, 2 European countries, and 7 countries located in Sub-Saharan Africa.

Table A1: The Sample of Countries

Arab countries	**Asian countries**	**European countries**	**Sub-Saharan Africa**
Algeria	Uzbekistan	Albania	Chad
Bahrain	Azerbaijan	Turkey	Gambia
Comoros	Bangladesh		Guinea
Djibouti	Indonesia		Mali
Egypt	Iran		Niger
Jordan	Kyrgyzstan		Senegal
Kuwait	Malaysia		Sierra Leone
Lebanon	Pakistan		
Libya	Tajikistan		
Mauritania	Turkmenistan		
Morocco			
Oman			
Saudi Arabia			
Sudan			
Syria			
Tunisia			
U.A. Emirates			
Yemen			

Notes: The share of the population adhering to Islam in these countries is greater than 50 percent.

Table A2: Hausman Test

	β IV	α GLS	$\beta - \alpha$ Difference
Internal openness	0.102	0.012	0.090
External cultural openness	0.007	0.000	0.008
GDP (logged)	0.218	0.309	-0.091
Government consumption	0.052	0.035	0.017
Trade openness	0.007	0.016	-0.009
Infrastructure	0.062	0.044	0.018
Health	-0.008	0.007	-0.015
Oil/gas exporter	-0.579	-0.568	-0.011
Democracy index	-0.048	-0.072	0.024
Muslim share	-0.028	-0.038	0.010
Arab country	1.190	1.177	0.013

Notes: β = consistent under H_0 and H_1; obtained from the G2SLS IV regression.
α = inconsistent under H_1, efficient under H_0; obtained from the GLS regression.
Test: H_0 = difference in coefficients not systematic.
$\chi^2(11) = 22.64$, Prob $> \chi^2 = 0.0199$.

Table A3: First Stage of G2SLS IV Regression

	Internal openness	External openness
GDP (logged)	0.926*	-13.784**
	(0.537)	(4.195)
Government consumption	-0.061	-1.705*
	(0.099)	(0.773)
Trade openness	0.052**	0.489**
	(0.015)	(0.117)
Infrastructure	-0.220*	1.374
	(0.100)	(0.778)
Health	0.184**	0.165
	(0.029)	(0.224)
Oil/gas exporter	2.600	-8.758
	(1.923)	(15.016)
Democracy index	-0.204	0.160
	(0.158)	(1.231)
Muslim share	0.198	2.040
	(0.142)	(1.107)
Arab country	0.921	-0.583
	(4.330)	(33.816)
Ratio of cost line to borders	-0.021	1.857**
	(0.044)	(0.341)
State religion	-3.540	61.012**
	(2.852)	(22.272)
Distance from Mecca	0.000	-0.011*
	(0.001)	(0.005)
Religious pluralism	13.015	149.578*
	(8.385)	(65.482)
Sub-Saharan Africa	8.242	79.513*
	(5.079)	(39.663)
Asia	0.771	-16.005
	(4.813)	(37.584)
Arabian peninsula	-9.516**	14.657
	(3.545)	(27.682)
Wald χ^2	86**	156**
Number of observations	315	315

Notes: For space considerations, the coefficient on the intercept is not shown. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Appendix B (Chapter 2)

The sample used in chapter three consists of 27 countries. The geographical distribution of the countries is as follows: 5 Arab countries, 9 Asian countries, 6 countries are located in Europe, and 7 Sub-Saharan African countries.

Table B1: The Sample of Countries

Arab countries	**Asian countries**	**European countries**	**Sub-Saharan Africa**
Algeria	Azerbaijan	Albania	Burkina Faso
Egypt	Bangladesh	Bulgaria	Ethiopia
Jordan	India	Cyprus	Ghana
Morocco	Indonesia	Georgia	Mali
Saudi Arabia	Iran	Russia	Nigeria
	Kyrgyzstan	Turkey	Tanzania
	Malaysia		Uganda
	Pakistan		
	Singapore		

Notes: The share of the population adhering to Islam in these countries $\geq$ 10 percent. Countries with a Muslim share of the population of 50 percent or higher represent 63 percent of the sample.

Table B2: Religiosity and Economic Growth

Growth rate	(1)	(2)	(3)
Intercept	10.343*	11.733**	10.966**
	(4.707)	(4.169)	(3.888)
Initial GDP per capita	-1.384	-0.923	-0.862
	(0.819)	(0.516)	(0.509)
Investment	0.034	0.096	0.106
	(0.096)	(0.060)	(0.059)
Inflation	-0.028**	-0.030**	-0.031**
	(0.006)	(0.006)	(0.005)
Trade openness	0.001	0	-0.003
	(0.011)	(0.009)	(0.010)
R&D	0.012	0.002	0.003
	(0.015)	(0.005)	(0.005)
Democracy index	0.147	0.01	-0.021
	(0.249)	(0.123)	(0.127)
Attendance (once a week)	-0.065	-0.021	-0.008
	(0.049)	(0.030)	(0.031)
Belief	Religious person	Religion is important	God is important
	0.061	-0.059	-0.042
	(0.093)	(0.103)	(0.041)
Muslim share	0.001	0.003	0.009
	(0.014)	(0.014)	(0.015)
Arab country	0.423	-0.109	0.015
	(1.596)	(1.126)	(1.122)
Wald $\chi^2(10)$	38.16**	52.35**	54.30**
Number of Observations	50	50	50
Number of Countries	27	27	27

Notes: G2SLS IV regressions. The instrumented variables are the attendance and belief variables. The instruments are a dummy variable for Soviet past; a measure of religious pluralism; the distance in kilometres between the capital city and Mecca, Saudi Arabia; dummy variables for the three geographic locations Asia, Europe, and Sub-Saharan Africa. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Table B3: First Stage of G2SLS IV Regression

	Attendance (one a week)	Religious person	Religion is important	God is important
Intercept	66.399	71.915	39.647**	59.857
	(42.772)	(60.525)	(12.371)	(38.803)
Initial GDP per capita	-7.686	-1.940	-1.644	-1.074
	(5.477)	(7.750)	(1.584)	(4.969)
Investment	-0.481	0.623	0.246	0.321
	(0.508)	(0.719)	(0.147)	(0.461)
Inflation	0.005	-0.008	-0.026*	-0.035
	(0.037)	(0.052)	(0.011)	(0.034)
Trade openness	-0.114	0.006	0.000	-0.131
	(0.097)	(0.137)	(0.028)	(0.088)
R & D	0.042	-0.133**	-0.012	0.005
	(0.036)	(0.051)	(0.010)	(0.033)
Democracy index	-1.256	-3.275	-0.303	-1.252
	(1.295)	(1.832)	(0.374)	(1.174)
Muslim share	-0.041	-0.039	0.117**	0.273*
	(0.129)	(0.182)	(0.037)	(0.117)
Arab country	36.426*	8.228	4.233	10.849
	(14.638)	(20.714)	(4.234)	(13.280)
Distance from Mecca	0.003	0.000	0.000	0.000
	(0.002)	(0.003)	(0.001)	(0.002)
Soviet past	-31.466*	-30.530	-17.469**	-37.293**
	(13.196)	(18.673)	(3.817)	(11.972)
Asia	39.790**	23.151	1.464	6.155
	(14.188)	(20.077)	(4.104)	(12.871)
Europe	46.807*	38.532	6.394	4.917
	(22.171)	(31.373)	(6.413)	(20.113)
Sub-Saharan Africa	69.846**	24.699	0.704	7.560
	(17.781)	(25.162)	(5.143)	(16.132)
Religious pluralism	-15.872	10.066	15.899*	24.933
	(23.770)	(33.637)	(6.875)	(21.565)
Wald $\chi^2(14)$	134**	34**	206**	154**
Number of Observations	50	50	50	50
Number of Countries	27	27	27	27

Notes: The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Table B4: G2SLS IV Regression
for the Sub-Sample of Countries Observed Twice

Growth	(1)	(2)	(3)	(4)
Intercept	-14.717*	-11.263	18.221	26.576
	(5.785)	(10.114)	(25.565)	(27.218)
Initial GDP per capita	2.215**	1.672	-1.001	-1.598
	(0.724)	(0.964)	(2.384)	(2.404)
Investment	0.091	0.048	0.168	0.137
	(0.057)	(0.089)	(0.108)	(0.080)
Inflation	0.114**	0.087*	0.047	-0.013
	(0.040)	(0.042)	(0.050)	(0.083)
Trade openness	-0.033**	-0.028*	0.009	0.026
	(0.010)	(0.012)	(0.036)	(0.042)
R&D	-0.02	-0.005	0.006	0.012
	(0.019)	(0.019)	(0.020)	(0.022)
Democracy index	-0.051	0.026	-0.124	-0.205
	(0.115)	(0.208)	(0.144)	(0.178)
Attendance (once a week)	0.033			
	(0.017)			
Belief		Religious person	Religion is important	God is important
		0.017	-0.098	-0.138
		(0.036)	(0.099)	(0.111)
Muslim share	-0.021	-0.004	-0.024	-0.011
	(0.013)	(0.025)	(0.017)	(0.014)
Arab country	0.524	0.174	0.291	-0.377
	(0.784)	(0.801)	(0.843)	(0.947)
Wald $\chi^2(9)$	41.05**	34.09**	32.30**	30.58**
Number of Observations	18	18	18	18
Number of Countries	9	9	9	9

Notes: The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Table B5: G2SLS IV Regression
for the Sub-Sample of Countries Observed Four Times

Growth	(1)	(2)	(3)	(4)
Intercept	18.703	1.297	-5.248	6.226
	(44.471)	(15.728)	(28.941)	(15.392)
Initial GDP per capita	-3.271	-0.99	-0.035	-1.583
	(6.182)	(2.700)	(4.194)	(2.582)
Investment	-0.121	-0.191	-0.189	-0.161
	(0.184)	(0.166)	(0.148)	(0.133)
Inflation	-0.025**	-0.026**	-0.024**	-0.025**
	(0.005)	(0.006)	(0.006)	(0.005)
Trade openness	0.109*	0.096	0.079	0.103
	(0.055)	(0.063)	(0.078)	(0.055)
R&D	-0.001	-0.005	-0.008	-0.004
	(0.030)	(0.035)	(0.031)	(0.029)
Democracy index	1.576	1.706	1.413	1.633
	(0.813)	(1.010)	(1.009)	(0.836)
Attendance (once a week)	-0.073			
	(0.247)			
Belief		Religious person	Religion is important	God is important
		0.021	0.061	-0.001
		(0.044)	(0.146)	(0.047)
Muslim share	0.068	0.009	-0.026	0.028
	(0.148)	(0.063)	(0.133)	(0.069)
Wald $\chi^2(8)$	71.17**	44.78**	60.22**	63.65**
Number of Observations	16	16	16	16
Number of Countries	4	4	4	4

Notes: The dummy Arab country is dropped from the regression because none of the countries of the sub-sample is an Arab country. The standard errors reported in parentheses. The symbols ** and * mean that the coefficient is statistically significant at the 1 and 5 percent level, respectively.

Appendix C (Chapter 3)

The samples of individual observations used in chapter four are collected from 17 countries, three of them are predominantly Shi'ite and the rest are predominantly Sunni. Table (C1), below, gives the list of the countries by dominant Islamic faith.

The symbol † indicates the countries from which the samples of individuals are collected to study the influence of September 11 on religious behaviour in sub-section (3.4.2) of this dissertation.

Table C1: Countries by Dominant Islamic Faith

Predominantly Sunni countries			
Albania	Egypt†	Malaysia	Saudi Arabia
Algeria	Indonesia†	Mali	Turkey†
Bangladesh	Jordan†	Morocco†	
Burkina Faso	Kyrgyzstan	Pakistan	
Predominantly Shi'ite countries			
Azerbaijan	Iran†	Iraq	

Notes: The share of the population adhering to Islam in these countries higher than 50 percent.
† Countries from which the samples of individuals used in sub-section (4.4.2) are collected.

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